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BULLETIN No. 114

BIOLOGICAL SERIES No. 38

BIRDS OF LAKE MISTASSINI AND LAKE ALBANEL, QUEBEC

BY

W. Earl Godfrey

OTTAWA
EDMOND CLOUTIER, C.M.G., B.A., L.Ph.,
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
CONTROLLER OF STATIONERY
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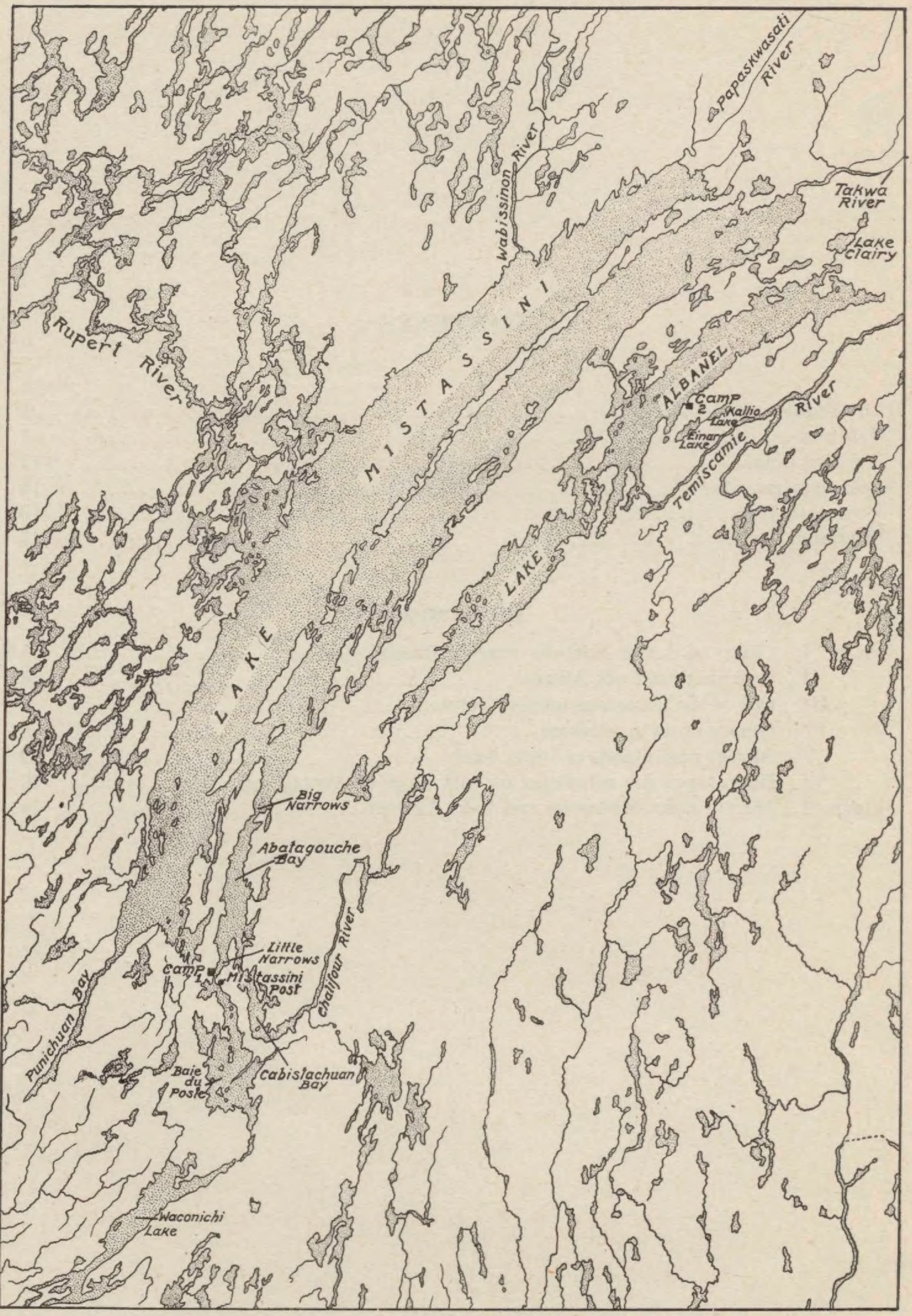

Figure 1. Map of Lake Mistassini and Lake Albanel.

BIRDS OF LAKE MISTASSINI AND LAKE ALBANEL, QUEBEC

INTRODUCTION

The first and only report on the birds of Lake Mistassini, Mistassini territory, in the southern part of the zoologically little known Quebec interior, was made by James M. Macoun in 1885. Macoun, a member of the Canadian Geological Survey's Lake Mistassini expedition, left Lake St. John, Quebec, on April 9, 1885, and travelling on snowshoes with A. P. Low, leader of the expedition, arrived at Mistassini Post on April 29. Macoun remained at Mistassini Post until June 30, engaged in making natural history and meteorological observations. Between June 30 and July 22, he accompanied Low to the north end of Lake Mistassini, travelling by canoe along the west shore and returning to the Post along the east side of the lake. Another month was then spent at the Post, and on August 22 the party left Lake Mistassini and began the descent of Rupert River to James Bay. Macoun's briefly annotated list of fifty-three bird species is included as Appendix I in the report of Low (1885, pp. 34D-35D). Macoun collected bird specimens, but the whereabouts of these, if still extant, is unknown to the writer.

A field party of the National Museum of Canada composed of Rodger O. Standfield, William A. Morris, and the writer left Dolbeau, Lake St. John, Quebec, by plane on June 19, 1947, and established Camp 1 near Mistassini Post, southern Lake Mistassini, Quebec, the same day. This camp served as a base from which investigations of the birds and mammals were carried on in the southern part of Lake Mistassini until August 1. On August 2, the writer travelled by plane to Kallio Lake, east of Lake Albanel, and on the following day made a brief survey on foot of the country between Lake Albanel and Temiscamie River. Messrs. Standfield and Morris moved to Lake Albanel on August 3 and on that date Camp 2 was set up on the east shore of Lake Albanel, 8 miles north of the mouth of Temiscamie River. In the afternoon of August 4, the writer left the field, travelling by plane east to Onistagan, then south to Chicoutimi. Messrs. Standfield and Morris continued work, using Camp 2 as a base, until September 13, when field work was terminated. The ornithological results obtained by this expedition are the subject of the present report.

Location. Lake Mistassini, Quebec, is a long narrow body of water trending northeast between latitudes 50°30′ N. and 51°20′ N. and longitudes 72°45′ W. and 74°25′ W. Thus it is situated approximately 200 miles east of James Bay, its northern extremity lying roughly 400 miles north of Montreal. Its length is about 100 miles, but its greatest breadth is not more than 18 miles, and its average breadth is probably less than 12 miles. Lake Albanel, just east of Lake Mistassini and parallel with it, is about 60 miles long, but its greatest breadth probably does not exceed 7 miles and its average breadth is considerably less.

Relief. Long, low ridges, trending northeast, characterize the region. One of these almost bisects longitudinally Lake Mistassini, its unsubmerged parts forming a chain of large and small islands down the middle of the lake. Emerging above the surface of the water at both ends of the lake, this ridge divides each end into two long bays. Another such elevation separates Lake Mistassini from Lake Albanel. A third extends along the east shore of Lake Albanel in such a way that Temiscamie River must flow parallel with Lake Albanel for half the length of the latter before it finds an entrance to the lake. These long ridges are cuestas, facing west; thus much of the east shores of both Lake Mistassini and Lake Albanel are low cliffs.

Takwa Mountains, 10 miles north of the northeast end of Lake Mistassini, are said by Neilson (1947, p. 10) to rise 1,000 feet above the lake. Along the height of land to the east, ridges trending northeast also have considerable altitudes. From the south end of Lake Mistassini, between it and Lake Chibougamau, abruptly rising hills are visible.

In general, however, the terrain about the two large lakes is gently rolling, with numerous low glacial ridges, drumlins, and eskers, none of which rises more than 300 feet above Lake Mistassini. Interspersed with these are myriads of irregular lakes and muskegs.

Drainage. Lake Mistassini is situated just west of the Hudson Bay-St. Lawrence watershed and is about 1,220 feet above sea-level. Most important of the streams flowing into it are Takwa, Papaskwasati, and Wabissinon Rivers from the north. On the east Lake Albanel, which is fed mainly by Temiscamie River, pours its excess water in a powerful rapid through a 2-mile long gorge into Lake Mistassini. At the south end of Lake Mistassini, Chalifour River and waters from Lake Waconichi are the main streams. Lake Mistassini is drained by Rupert River into James Bay.

The main rivers of the region trend northeast-southwest. They are youthful, generally shallow, and frequently turbulent. Most of the many small lakes were formed by damming of streams by glacial deposits.

Geology. The bedrock geology of the region has been described by Low (1885), Norman (1940), and Neilson (1947). Geologically the region is of especial interest because of its location near the boundary between the Grenville and Timiskaming subprovinces of the Canadian Shield. Of particular interest to the biologist is the fact that Lake Mistassini and Lake Albanel are underlain mainly by late Precambrian dolomites and dolomitic limestones and the resulting calcareous nature of the soil probably accounts in part at least for the fine forest development about the lakes. Bedrock is, however, usually well buried under glacial drift and little extensive exposure, except on the shores and islands, was observed. The uppermost member of the dolomite rock formation is exposed in many places along the east shore of Lake Albanel, and near Camp 2 cryptozoon structures were observed. Between Lake Albanel and Temiscamie River an iron-bearing formation, in which slates and ferruginous cherts are conspicuous, overlies the dolomite, but this formation is not extensive. Most of the forest cover over this formation is second growth as a result of fire.

Climate. Long, cold winters and short, cool summers characterize the region. Temperature data (Fahrenheit) taken at Mistassini Post over a period of years were supplied by the Meteorological Division of the Department of Transport as follows:

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Mean max.......	9·3	11·2	25·5	40·7	56·2	67·1	72·7	69·4	59·8	46·7	29·5	16·3
Mean min.......	-15·6	-14·3	0·4	20·3	33·8	45·0	51·7	49·3	37·8	31·6	15·1	-3·6
Mean temp......	-3·2	-1·6	12·9	30·5	45·0	56·1	62·2	59·4	48·8	39·2	22·6	6·4

Absolute minimum temperature recorded at Mistassini Post is -56 degrees, absolute maximum, 95 degrees. Unfortunately, data for 1947 are not available. Low (1885) states that "during the summer months the sky is clouded a greater part of the time, accompanied by drizzling rains and heavy thunder storms."

The summer of 1947 was apparently both unusually warm and dry. Of the 85 days spent by the National Museum party at Lake Mistassini and Lake Albanel, precipitation was recorded on 35 days. Very heavy thunder storms are characteristic of summer and are often accompanied by torrential rain and strong wind. One particularly violent storm, on July 30, could be heard approaching several minutes before it struck. In the 20 minutes duration of its greatest violence, six trees were either seen or heard to blow down with impressive crackling. On several other dates, sudden strong winds, with or without precipitation, struck without warning.

The spring of 1947 was unusually late generally over eastern Canada. Breakup occurred on Lake Mistassini on June 3. Men at the Hudson's Bay Mistassini Post said that snowshoes were still necessary there on May 24, 1947. On June 19, when the expedition arrived, white birch leaves were just emerging from bud, but on the warm days that followed foliation was extremely rapid. Snow and ice remained under certain logs in the cooler forest until June 29, and first autumn snow was recorded on September 5. Snow is said by Low (1885) to cover the ground from mid-October to late May.

Indians. About six hundred Montagnais-Nascopie Indians, who speak neither English nor French, summer at Mistassini Post. Coming from points as distant as Lake Nichikun, they bring their winter fur catch to the Post as soon as possible after breakup. They spend the summer in tents clustered about the trading post of the Hudson's Bay Company and that of the nearby free trader. Most of these Indians return to their hunting grounds in August and only a small number winter about the Post. These Indians do not travel overland much in summer due to difficult walking and the insect hordes, so that their effect on most bird life is probably not great. The children destroy a few nests of passerine birds near the Post and the eggs of gulls and terns are taken at every opportunity by all. In general, during summer, however, they follow the waterways in canoes taking a few loons and ducks, but most of their food is fish caught in nets. The resident Indians, however, have reduced the fur-bearing mammals considerably in the Mistassini Post region and a local paucity of spruce grouse near the Post also is probably attributable to them.

Areas Investigated. From Camp 1, on Little Narrows, near Mistassini Post, the islands and both shores of Baie du Poste, Abatagouche Bay, and the west shore of Cabistachuan Bay were worked. The forests, many of the numerous ridges, inland lakes, and muskegs were intensively investigated. No evidence was found here of recent forest fires except on the west shore of Abatagouche Bay where several miles north of camp an extensive burn, perhaps 15 years old, was located.

At Lake Albanel, the handicap imposed by the necessity, due to air transportation, of using 16-foot canoes, and also by a breakdown of the outboard motor were keenly felt by Standfield and Morris. Except on rare calm days, such small canoes were difficult to use on these vast, exposed waters. Nevertheless, the shores and forests for a distance of several miles north, south, and east of Camp 2 were investigated, and many of the small islands were worked; but only once was it possible to cross the big lake to the west shore. Burns on the east shore of Lake Albanel are extensive, although the west shore appeared to be unaltered and supports a thick black spruce forest.

HABITATS

The forests of both areas investigated are referable to the Northeastern Coniferous Section of the Eastern Division of the Boreal Forest region of Canada as defined by Hamilton (1937, p. 12).

Except in recent burns and muskeg, the land is heavily forested. The calcareous nature of the soil is evidently a factor in the development so far north of a relatively fine forest; some white birch, for instance, reach heights of 60 feet or more. The boreal dominant, white spruce (*Picea glauca*), is not an important forest component. Black spruce (*Picea mariana*) is numerically much the most important tree and some reach a height of 60 feet. Black spruce covers most of the land, often in almost pure stands on low land, but being frequently associated with tamarack (*Larix laricina*) on wet ground such as bog or lake edges. Black spruce is also the most important tree on the ridges, but usually there is a considerable admixture of white birch and poplar, balsam fir, and white spruce. The crests of some of the higher, drier hills are sometimes wooded mainly with white birch (*Betula papyrifera*).

There are almost no trails. Countless lakes, streams, and bogs of irregular shapes and sizes, with edges of alder-willow tangles, are characteristic. A deep, spongy mat of sphagnum covers most of the ground. Waist-high tangles of Labrador tea (*Ledum*), laurel (*Kalmia*), and blueberry (*Vaccinium*), very difficult to travel through, are general except under the darkest forest.

The great, deep expanses of Lakes Mistassini and Albanel are in summer at least, except near shore, not much used by birds. Away from shore, one might paddle for hours and see few birds. The herring gull, common tern, American merganser, and American golden-eye when observed here were usually in flight.

Because Rupert River is unable to drain Lake Mistassini as fast as water from melting ice and snow is poured into it after spring breakup, water level of the lake in spring continues to rise until July. During the first few days of July 1947 water level ceased rising and remained almost static. By July 14, it had dropped 6·5 inches at Little Narrows, and on July 20, it had fallen another 5 inches. On August 2, it had fallen about 17 inches from peak. This condition is said to be usual. Low land at the edge of the lake is, therefore, inundated for a considerable part of the short summer and water edge habitats are under water to, and often through, the alder-willow or ericaceous shrub zone.

PLATE I

Camp on Little Narrows near Mistassini Post in black spruce forest. Note high water. (July 4, 1947.) (Neg. No. 99899.)

Most of the shores of both Lake Mistassini and Lake Albanel are rocky, but the shores of southern Abatagouche Bay and Baie du Poste are, for the most part, exceptions. The shores of these great bays are indented with numerous long, often shallow, bays. Many of them are quiet and well sheltered, with pond lilies (*Nymphaea*) in their shallow-water edges, which often give way to a bulrush (*Scirpus*) zone, usually sparse but sometimes quite extensive. Cat-tails (*Typha*) were not observed anywhere in the region.

Such areas seem to be the nearest approach to marshes, but high water during June and July inundated the land back through the willow-alder and ericaceous shrub zones, often to the coniferous forest itself. Great northern pike and wall-eyed pike are common in these bays. The herring gull, common tern, tree swallow, and nighthawk feed over the open water and the American merganser and the common loon are frequent visitors to the water surface. The belted kingfisher feeds along the shallow edges and the black duck prefers the *Scirpus* margins.

The east shore of Lake Albanel is generally rocky and along much of it the side of the cuesta rises vertically from the water. The shores surrounding camp were low, however, and beach-like. Water edge there is generally separated from the nearest shrub zone by either bare dolomitic bedrock or by a zone of small and large rocks pushed up by winter ice.

PLATE II

East shore of Lake Albanel near camp, looking north (August 4, 1947). (Neg. No. 99931.)

The spotted sandpiper frequents the rocky shores, and the herring gull, common tern, common loon, and the two large species of merganser feed in the near-shore waters.

Lakes Einar and Kallio, each about 2½ miles in length, were both briefly investigated by the writer throughout their lengths. Habitats and bird distribution did not appear to differ significantly from those on Lakes Mistassini and Albanel.

Interior ponds are numerous, frequently shallow, and often bordered by muskeg. Broad, floating mats of sphagnum push closely against a sparse sedge and bulrush zone, and many of these ponds are slowly becoming bogs. Cranberries grow on the sphagnum mat and the pitcher plant (*Sarracinia purpurea*) is conspicuous. Great northern pike are abundant in some of the deeper ponds and lakes, but generally seem to be of small size. Most of these ponds are surprisingly silent and almost barren of bird life, but golden-eyes often resort to their quiet waters, particularly in windy weather. The greater yellow-legs was found once on the sphagnum edge, and occasionally the Savannah sparrow. Where alder edges occur, the swamp sparrow may breed.

Bogs are numerous and some are extensive. Stunted black spruce and tamarack are characteristic trees, and alder and willow tangles are numerous. A thick mat of sphagnum supports ericaceous shrubs, particularly on the slight elevations. Grasses and sedges sometimes grow in the slight depressions and occasionally occupy considerable areas. Lincoln, swamp, and white-throated sparrows, the mourning warbler, and the olive-sided flycatcher are important members of the bog fauna. The Savannah sparrow, in the paucity of grassy clearings, uses this habitat but is uncommon.

Islands are numerous in all the larger lakes. They are generally low and densely wooded, mainly with black spruce, but often mixed with birch. Occasional small islands are wooded almost entirely with white birch of splendid stature, and are much favoured by the yellow warbler. A 10-acre islet forested mainly with 40-foot white birch had four singing males on July 12. Common terns and herring gulls nest on the rocky edges of some of the islands in Lakes Mistassini and Albanel, and the former on islands in Kallio Lake. Islands in southern Abatagouche Bay, Baie du Poste, and Cabistachuan Bay generally support jungles of alder around their edges, overhanging the water and often rendering it difficult to get ashore from a canoe without wading. Grinnell water-thrushes and yellow warblers are particularly partial to these small islands, and various other warblers and finches also breed there.

PLATE III

One of the numerous interior ponds (right). A pair of swamp sparrows nested on the ground in the alder-willow zone (June 23, 1947). (Neg. No. 99887.)

Little sand beach was observed on either lake. Two narrow sand beaches, 100 yards long, one on either side of the point on which Camp 2 was located, were the most extensive observed. They were barren of vegetation, except for a few scanty patches of shrubby cinquefoil (*Potentilla fruiticosa*), and passed abruptly on the extreme upper edge into a zone of alder, a little red osier dogwood (*Cornus*), and ericaceous shrubs.

Tracks of Cope's toad (*Bufo americanus copei*) criss-cross these beaches. The least and semipalmated sandpiper and the semipalmated plover occasionally pause and feed here in autumn migration.

Alder-willow tangles form an important habitat along much of the shores of the two large lakes, and particularly on the shores of the numerous long quiet bays indenting the shores of Abatagouche and Cabistachuan Bays, Baie du Poste, and on the margins of the smaller interior lakes, low islands, muskegs, and some of the streams. The swamp sparrow, yellow warbler, northern yellow-throat, rusty blackbird, and Grinnell water-thrush are characteristic bird species here. On the upper, drier edge of this habitat, the white-throated sparrow was frequently a visitor.

PLATE IV

Of the many muskegs, few have grassy areas such as this. A pair of Savannah sparrows was found here (June 24, 1947). (Neg. No. 99890.)

Mixed (spruce-birch) woods are extensive on some of the drier hill-sides, with birch, balsam fir, and white spruce increasing numerically over black spruce as drainage improves. The crests of some of the hills observed are timbered mainly with white birch of good stature and with trunk diameters as large as 21 inches. A thick mat of sphagnum persists under these mixed woods and tangles of ericaceous shrubs flourish except where the overhead canopy is thick and continuous. The yellow-bellied sapsucker and black-throated green warbler show a decided preference for this habitat. The magnolia and myrtle warblers, olive-backed thrush, red-eyed vireo, purple finch, slate-coloured junco, white-throated sparrow, brown creeper, and Arctic and American three-toed woodpeckers also commonly use it.

The fire subclimax birch-aspen covers much of the burnt land, a considerable area of which is present on the west shore of Abatagouche Bay. Also, very extensive burns occur over much of the east side of Lake Albanel.

The causes of the forest fires in the region are not always obvious. In the unusually warm, dry weather of July 1947 the writer's impression was that the average Indian was alert to the danger of forest fire and that he behaved accordingly. It is probably true, however, that some are less careful than others, particularly when away from their own hunting grounds, and fires are, therefore, often man-caused.

Lightning probably causes some. While flying between Lake Albanel and Onistagan on August 4, the writer saw several burns less than a month old in areas where it was unlikely that Indians would be travelling during summer. In the unusually hot, clear weather from late June to mid-July, 1947, the forests on higher ground became very dry. A 10-day period of dry weather was interrupted for 3 hours on July 12 by a violent thunderstorm. On July 14, the smoke of three forest fires could be seen from Mistassini Post and on the following day the air became very smoky. A bush pilot said that many such fires were burning. Two days later, although no rain occurred, the air had cleared and no more smoke was visible. Thus most of these fires burn to the edge of the numerous lakes and muskegs and are there checked.

PLATE V

Almost pure stands of white birch occur on the tops of some of the higher, drier hills (July 12, 1947). (Neg. No. 99934.)

The Abatagouche Bay burns are now wooded with *Betula papyrifera*, *Populus tremuloides*, and *P. balsamifera*, which reach an average height of 20 to 25 feet. A few fire-killed trees still stand and the ground is littered with fallen ones. *Kalmia*, *Ledum*, and *Vaccinium* persist to form a dense, tangled undercover, and alder dominates much of the lower, wet ground. In openings and along the lake margins of this burnt land *Ledum* reaches its best development and is extremely difficult to travel through. Its profusion of white blossoms are a characteristic aspect of the edge of this habitat throughout the first 2 weeks of July. Characteristic birds of birch-aspen subclimax are olive-backed thrush, flicker, red-eyed vireo, and white-throated sparrow. The redstart, Philadelphia vireo, yellow-throat, least flycatcher, and Wilson warbler were found only where this habitat was mixed with alder.

PLATE VI

Birch-aspen fire subclimax on east shore of Abatagouche Bay. Labrador tea (white blossoms) grows luxuriantly at edges (July 10, 1947). (Neg. No. 99902.)

Jack pine (*Pinus banksiana*) is not infrequently associated with spruce and birch on higher ground in the Mistassini Post region. Fine park-like stands cover the tops of some of the sandy elevations between Mistassini Post and Punichuan Bay, and similar stands were noted on an esker some 6 miles south of the Post. Reindeer moss (*Cladonia rangiferina*) covers the forest floor and ericaceous shrubs are at a minimum. The ruby-crowned kinglet, Canada jay, white-throated sparrow, and slate-coloured junco occur here, but bird life in general is sparse.

Black spruce covers most of the land. On higher, drier ground it is conspicuously mixed with white birch, and it is much replaced on burned areas by birch-poplar and somewhat by jack pine on dry sandy hills. Elsewhere black spruce is by far the most abundant tree. Although it may reach a height of 60 feet, growth is slow (one trunk, 9 inches in diameter, 14 inches from the ground, had 94 annual rings). Particularly pure stands of black spruce are found on the low hills extending south from Mistassini Post for several miles. Here this forest reaches almost unmixed from a narrow zone of ericaceous plants or alder-willow at water edge to the top of the low ridges. The spindly tops allow sufficient penetration of sunlight for the development of tangles of *Ledum* and *Kalmia* on most of the forest floor. Abundant windfalls mould in a deep, soft carpet of sphagnum. Alder often borders even the smallest streams and covers much of the wet, shallow depressions. Birds are very sparsely distributed. Away from the margins of the big lakes the silence is impressive and one may at times walk for hours and hear little other than an occasional ruby-crowned kinglet, Tennessee warbler, or white-throated sparrow. Species found in this habitat are the three-toed woodpeckers, spruce grouse, yellow-bellied flycatcher, Canada jay, Hudsonian chickadee, winter wren, hermit thrush, golden-crowned and ruby-crowned kinglets, Tennessee, myrtle, magnolia, and bay-breasted warblers, pine grosbeak, pine siskin, white-winged crossbill, slate-coloured junco, and white-throated sparrow. Although these species inhabit black spruce forest, most of them are decidedly more numerous in areas where proximity of alder run, muskeg, or lake provide "forest edge" effect.

Clearings caused by cutting were few, but were very interesting. Those at Mistassini Post were the only ones noted, and they present a marked contrast to other habitats. Six hundred Indians and their dogs summer in three such clearings at Mistassini Post. Here a grassy field contains the introduced grass *Poa pratensis,* and in July it was bright with dandelions (*Taraxacum*). Aspen, birch, alder, and ericaceous shrubs persistently encroached on the clearing, extending for broad, varying distances from the surrounding forest. Fireweed (*Epilobium*) was conspicuous, but not extensive. Coniferous forest edge was thinned for several hundred yards by cutting for firewood and was mixed with second growth birch and aspen.

A pair of Savannah sparrows bred in the grassy clearing. In wetter areas, where alder dominated the forest edge, a pair each of Lincoln and swamp sparrows, yellow warbler, and northern yellow-throat bred. Tree swallows nested in several dead trees and a pair of chipping sparrows occupied the alder-birch-poplar edge and often fed on the trampled grasses. A pair of olive-sided flycatchers, and a few cedar waxwings and purple finches, fed frequently in tops of mature black spruce and white birch trees isolated on the edge of the clearing. Three pairs of slate-coloured juncos, five pairs of white-throated sparrows, two pairs of robins, and a pair each of ruby-crowned kinglet and magnolia warbler nested in the deeper forest edge, and a ruffed grouse was noted and said by Indians to breed there.

This narrow clearing, though densely populated in summer by noisy Indians and their dogs and enclosing the trading posts of the Hudson's Bay Company and the free trader, was definitely favourable to many bird species and supported undoubtedly the densest bird population encountered in the region. In fact, the chipping sparrow and the cedar waxwing were nowhere else observed; and the crow, although not actually seen to visit the clearing, was noted only within a three-quarter mile radius of it and was perhaps influenced by its proximity.

It is of interest that certain species on the northern periphery of their range at Lake Mistassini, such as the redstart, Philadelphia vireo, least flycatcher, chipping sparrow, and cedar waxwing, appeared to be confined to areas drastically altered by fire or by axe. Undoubtedly large-scale settlement in the region, with its accompanying habitat modifications, would extend northward the breeding range of several additional bird species and would result in generally denser populations of passerine birds.

THE BIRD FAUNA

The bird fauna of the region was found to be rather poor both in species and in numbers of individuals, but this is scarcely surprising. Certain species occurring there, such as least flycatcher, cedar waxwing, yellow-bellied sapsucker, yellow palm warbler, and chipping sparrow, must be on the extreme northern periphery of their range in the Quebec interior, and many other species there are north of their centres of abundance. Other species such as the brown thrasher, song sparrow, rose-breasted grosbeak, goldfinch, veery, kingbird, and red-winged blackbird, for example, reach the Lake St. John basin, 125 miles to the south (*See* Godfrey and Wilk, 1948), but do not extend their range to Lake Mistassini.

A heavy black spruce forest with a minimum of "edge effect" covers most of the land at Mistassini Post and cannot be expected to attract large populations. Paucity of grassy meadows accounts for a sparse population of the Savannah sparrow and other field birds, and the almost total lack of settled clearings explains the absence of the English sparrow, European starling, and barn swallow. The generally rocky shores, with few marshes, are unattractive to waterfowl, and in the paucity of sand beaches and mud flats there is little to induce large numbers of shore birds to pause long in migration.

Low (1885, p. 15D) commented on the paucity of waterfowl. It is true that the region is surprisingly poor in habitats attractive to surface feeding waterfowl, as although there is an abundance of lakes and ponds, the lakes generally have rocky shores. Low land on the shores of Lake Mistassini is inundated during most of June and July, and where the shores are not rocky, sphagnum, alder, willow, and ericaceous shrubs grow down to water edge in most cases.

During June and July 1947, an average of at least 3½ hours a day was spent by members of our party in canoe travel. In addition, all likely looking waterfowl habitats, including many inland ponds, were investigated. In this period a careful record of all waterfowl seen shows that a total of 81 ducks were noted, of which 41 were American golden-eyes, 36 mergansers, and only 4 were surface feeders (black ducks). Even fewer ducks were observed on Lake Albanel in August and early September.

The waterfowl observations of Messrs. Murray H. and Edward S. Rogers, made in conjunction with their 1947 archæological survey of Lakes Mistassini and Albanel, are similar to ours. Messrs. Rogers arrived at Mistassini Post on July 8 by canoe from Oskelaneo. They travelled north along the east coast of Lake Mistassini to the outlet of Lake Albanel, entered the latter on July 17, and crossed to Temiscamie River, which they ascended a short distance. They then moved to the south end of Lake Albanel along its west shore and portaged west to Lake Mistassini, which they crossed. They left Lake Mistassini on August 8, descending Rupert River.

Mr. Murray Rogers says (*in litt.*), "Along this route which we followed by paddling a sixteen-foot canoe, we found waterfowl sparsely distributed. We observed American Golden-eye and American Mergansers, most of which were females. . . . The broad marshes of the mouth of the Temiscamie River yielded no Blacks to our sight, only Mergansers and Golden-eyes. No Canada Geese were identified in the Mistassini region."

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SYSTEMATIC LIST [1]

Common Loon. *Gavia immer* (Brünnich)

Fairly common breeder along the shores and islands of Lakes Mistassini and Albanel, but considerably reduced in the vicinity of the Post, where it is hunted at every opportunity with high-powered rifles by the Indians for food. Feathers were several times noted about Indian camps, and on July 7 an Indian was seen plucking a still warm adult. In the Mistassini Post region it was noted also as follows: June 26(1); July 15(2), 16(2), 21(1), 24(1). Actions of two adults, on July 15 and 16, suggested the presence of young. One of these adults, after being pursued by canoe for some 15 minutes, arose from the water without difficulty even though almost no wind was stirring. M. H. and E. S. Rogers (*in litt.*) examined two downy young on August 5, 1947, in waters about the central chain of islands of Lake Mistassini.

At Lake Albanel, where usually no Indians summer, the species was noted more commonly: August 3(2), 4(1), 8(1), 9(1), 10(1), 11(1), 12(2), 20(1), 22(1), 27(1), 29(1); September 2(2), 5(1), 6(5), 8(1), 9(1).

[**Pacific Loon.** *Gavia arctica pacifica* (Lawrence). Under the name *Colymbus arcticus*, Macoun (Low, 1885) recorded this loon at Lake Mistassini. Again Macoun and Macoun (1909, p. 12) say of it "Not common at Lake Mistassini, but a few breed". All loons examined by us were *immer*. The breeding of the Pacific loon at Mistassini Lake is highly questionable, although it may do so farther north in the Quebec interior. It seems best placed on the hypothetical list of Mistassini Lake birds.]

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[1] A number in parentheses following a date is the number of bird individuals observed on that date.

Black-crowned Night Heron. *Nycticorax nycticorax hoactli* (Gmelin)

Macoun (Low, 1885) recorded a single specimen taken on August 6, 1885. This probably is an example of the familiar post-breeding wandering of the herons. The species is known to occur at Lake St. John (Godfrey and Wilk, 1948).

American Bittern. *Botaurus lentiginosus* (Montagu)

Although not observed by members of our party, evidence of its occurrence was obtained as follows. James Neilson, Mistassini Explorations geologist, heard one "pumping" about June 13, 1947, near Mistassini Post. David Paul, Hudson's Bay Company, Mistassini Post, described unmistakably a specimen found by him in the autumn of 1946. Dr. William G. Wahl, of the Quebec Department of Mines, reported seeing and hearing a bittern in a marsh near the mouth of Temiscamie River in the "early summer" of 1947. Both Neilson and Wahl were familiar with this species previously.

Canada Goose. *Branta canadensis* subsp.

Macoun (Low, 1885) reported that this species "Passed May 2nd." On August 4, 1947, Standfield saw five Canada geese flying over Lake Albanel near camp. The bill of a Canada goose, found at Mistassini Post, was examined by the writer. James M. Neilson and Alexander H. Tait reported (*in litt.*) that they saw a Canada goose on July 20, 1946, that had been killed 2 days earlier by a prospector on a shallow, muddy lake near the south end of Lake Albanel, between that lake and Lake Mistassini. This bird, one of several, perhaps a family group, appeared unable to fly and was killed with a canoe paddle.

Mr. Tait also furnishes from his journal the following information:

"August 26th, 1946—Six adult Canada geese seen in a bay of the small river discharging Lake Clairy, between north end of Lake Albanel and Takwa River.

"June 22nd, 1947—Apparently same six geese as above again seen in identically the same spot as above. Indians report that they breed here and observing them in same spot on above two dates would tend to confirm this."

American Brant. *Branta bernicla hrota* (Müller)

Low (1896, p. 324L) recorded a sick bird of this species killed at Mistassini on July 2, 1885. He reveals, in subsequent remarks, his realization of the rarity of the brant in the interior. There seems to be no reason to doubt the validity of this record.

Black Duck. *Anas rubripes* Brewster

Uncommon summer resident; probably breeds. Noted only four times, usually in the vicinity of *Scirpus* margins of bays. On July 14, an adult was observed, the behaviour of which suggested the presence of young in the vicinity. The species was noted also at Lake Mistassini on July 18 (1) and 23 (2), and at Lake Albanel on September 5 (2).

The maxilla of a black duck was identified by the writer in a string of duck bills obtained from the Indians at Mistassini Post by Dr. Jacques Rousseau. David Paul, Hudson's Bay Post, said that the species is occasionally shot in autumn. Macoun (Low, 1885) observed it on May 20, 1885.

American Golden-eye. *Glaucionetta clangula americana* (Bonaparte)

Fairly common breeder; probably the most numerous summer duck. Noted about the bays of both Lake Mistassini and Lake Albanel (less frequently) and on the smaller interior lakes and ponds. Observed as follows: June 19(3), 20(1), 22(1), 23(6), 24(1), 27(1); July 9(1), 10(1), 12(2), 14(5), 15(3), 16(1), 19(1), 21(1), 22(7), 23(5), 27(1); August 11(1); September 8(2).

This duck was noted in flight most often just after sunset. It seemed to favour small inland lakes or ponds on which during the day it spent much time sunning and preening. On July 23, an adult with four young about 2 weeks old was observed in a quiet narrow bay 2 miles north of Mistassini Post. The young quickly gained hiding places in a thick margin of Labrador tea (*Ledum*) and blueberry (*Vaccinium*) partly flooded by high water. The adult swam far ahead of the young, displayed no "broken wing" tactics, uttered occasional harsh croaks, dove shallowly, flew when approached to 80 yards, circled once, and left the vicinity. Specimens collected:

Mistassini Post: 1 ad. ♀; July 22
Lake Albanel: 1 ♀; Sept. 6

King Eider. *Somateria spectabilis* (Linnaeus)

Macoun (Low, 1885) recorded a specimen without additional data. However, Macoun and Macoun (1909, p. 112) state that the specimen was taken in May 1885.

White-winged Scoter. *Melanitta fusca deglandi* (Linnaeus)

This species was not recorded by Macoun (Low, 1885). The only evidence of its occurrence obtained by us is a single maxilla on the string of waterfowl bills referred to under black duck, above.

Surf Scoter. *Melanitta perspicillata* (Linnaeus)

Migrant. Macoun (Low, 1885) observed it at Lake Mistassini on May 28, 1885. The maxillæ of 25 surf scoters were identified by the writer on the string of waterfowl bills described above.

American Scoter. *Oidemia nigra americana* Swainson

Migrant. The string of waterfowl bills mentioned above contained four maxillæ of this species. The American scoter was observed by Macoun on May 15, 1885 (Low, 1885).

Hooded Merganser. *Lophodytes cucullatus* (Linnaeus)

Rare summer resident. Two birds of this species, apparently females, were flushed from a quiet lagoon on July 22. On July 24, two females flushed from the same lagoon, one of which was collected. Young ducks apparently accompanying these females on the latter date were thought to be of this species, but were seen only fleetingly and quickly made good their escape in the dense willow-alder margins, flooded by high water, of the lagoon. A single female was noted here again on July 25.

The northern limits of the breeding range of this species in the East are not well known. Macoun and Macoun (1909, p. 77) list a vague record for "the interior of Labrador on July 16th", 1896 by Spreadborough. Spreadborough was assisting Low that year and the party on that date was at Clearwater Lake (Low, 1898, p. 11L). A. L. Wilk (Godfrey and Wilk, 1948) collected an immature male at Lake St. John, Quebec, on August 14, 1946. Lewis (1924) quotes Brooks as saying, "Several seen in the summer of 1919, by Prof. W. H. Twenhofel" on Anticosti Island. Comeau (1909) recorded it near Godbout on September 4, 1885, and September 10, 1889. Specimen collected:

Mistassini Post: 1 ad. ♀; July 24

American Merganser. *Mergus merganser americanus* Cassin

Fairly common, presumably breeding, on the south end of Lake Mistassini. This species was certainly identified as follows: June 20(2), 21(2), 27(1); July 3(1), 9(3), 10(7), 16(4); August 8(3). In addition, mergansers were noted at distances too great for specific identification on June 26(1); July 4(1), 8(2), 11(2), 12(2), 15(2), 22(2), 25(1), 27(1). Specimens collected:

Mistassini Post: 2 ad. ♀; July 10-16

Red-breasted Merganser. *Mergus serrator* Linnaeus

Fairly common breeder at Lake Albanel, but not identified at Mistassini Post. An adult female, accompanied by six downy young, was observed August 5 on Lake Albanel, 7 miles north of the mouth of Temiscamie River. Another female, with four young in the "flapper" stage, was noted on August 29 in the same locality. Specimens collected:

Lake Albanel: 4 downies, 4 juv.; Aug. 5-29

[**Goshawk.** *Accipiter gentilis atricapillus* (Wilson). Standfield on September 3 saw under fair conditions a hawk that he thought to be this species.]

Eastern Sharp-shinned Hawk. *Accipiter striatus velox* (Wilson)

Noted only twice. On July 29, a single bird was seen near Mistassini Post. Another, on August 27, was observed 7 miles north of the mouth of Temiscamie River on Lake Albanel.

Eastern Red-tailed Hawk. *Buteo jamaicensis borealis* (Gmelin)

The most frequently observed hawk both at Lake Mistassini and Lake Albanel. Probably breeds. No more than one bird was seen on any day, single birds being observed on June 20 and 22; July 3, 4, 5, 7, 11, 22; August 9, 15, 23, 25, 27, 31; September 2 and 4.

Northern Bald Eagle. *Haliaeetus leucocephalus washingtoniensis* (Audubon)

Rare. An adult was observed by Dr. Wahl, Quebec Department of Mines, 5 miles up Temiscamie River on July 13. An adult was noted by the writer as it flew over Lake Einar on August 3.

Osprey. *Pandion haliaetus carolinensis* (Gmelin)

Not observed by the National Museum expedition. Macoun (Low, 1885) listed it as "not common" and said that he observed it on July 10, 1885.

Eastern Pigeon Hawk. *Falco columbarius columbarius* Linnaeus

Noted only twice. Standfield saw one on September 6 and 9 on the east shore of Lake Albanel, 8 miles north of the mouth of Temiscamie River.

Eastern Sparrow Hawk. *Falco sparverius sparverius* Linnaeus

Rare summer resident. On July 12, a male of this species was observed by Standfield and the writer. As it flew over a burned area 4 miles north of Mistassini Post the diagnostic dorsal coloration was noted at about 100 yards. Dr. William G. Wahl reported that he saw a specimen on a burned-over ridge about 4 miles southeast of the Museum's Lake Albanel camp on August 26, 1947.

The species has been reported as breeding farther south at Pointe des Monts (Comeau, 1909, p. 423); and there are summer records from Anticosti Island (Schmitt, 1904) and Lake St. John (Godfrey and Wilk, 1948).

Hudsonian Spruce Grouse. *Canachites canadensis canadensis* (Linnaeus)

Common breeder on east shore of Lake Albanel; much scarcer in the vicinity of Mistassini Post where it is reduced by Indians. Feathers of two specimens were observed in a black spruce-alder bog edge 1 mile west of the Post. Macoun (Low, 1885) found it "common all year".

In the vicinity of the Lake Albanel camp it was a common inhabitant of both dense black spruce forest and the second growth (birch-poplar-alder) of burned-over areas. Twice it was observed briefly on an open sand beach near camp. Blueberries (*Vaccinium*) are abundant in the burned areas and the fruit is eaten by this grouse. Morris discovered an old nest that contained one empty eggshell. Nest was a mere depression in a moss hummock and was typically situated beneath a balsam fir (*Abies*) sapling.

Detailed taxonomic studies of the races of this species have recently been made by Uttal (1939), Friedmann (Ridgway and Friedman, 1946), and Rand (1948). On many points, however, there is considerable disagreement apparent in the conclusions reached by these authors, and obviously additional material is needed from certain critical localities. A series of seven in the National Museum of Canada, intermediate in characters, from Bonne Esperance, Havre St. Pierre, and Natashquan, Quebec, was referred by Uttal (p. 461) to *canadensis* and by Rand (p. 39) to *canace*. The Lake Albanel series of two females, admittedly inadequate and decidedly intermediate in coloration, seems best placed with *canadensis*. Specimens collected:

Lake Albanel: 10 ad. ♂, 2 ad. ♀, 5 juv.; Aug. 9-Sept. 7

Northern Ruffed Grouse. *Bonasa umbellus obscura* Todd

Uncommon. On July 5, it was heard "drumming" in the poplar-alder second growth of a burned area 4 miles north of the Post; also on the same date an adult was noted 1 mile west of the Post; on July 11, a male in mixed woods 2½ miles northeast of the Post, and on July 21, one in alder-poplar at the edge of the Indian village. Although our party did not record it at Lake Albanel, Dr. Wahl reported one between Einar and Kallio Lakes on August 26. Macoun (Low, 1885) found it "common all year."

About Mistassini Post it is less rare than the spruce grouse, which has been drastically reduced locally by the Indians. A ruffed grouse at the edge of the Indian village flushed warily just as it does in civilized localities. An adult male ruffed grouse on the shores of Cabistachuan Bay, however, remote from the Post Indians, refused to flush, merely walking and running 20 feet ahead.

Snyder and Shortt (1946) consider "*canescens* of Todd" (= *obscura: See* Todd, 1947, p. 326) to be darker than *umbelloides* and to be a recognizable race. Material in the National Museum of Canada supports this view. The single specimen examined from Lake Mistassini is darker and less greyish than a series of *umbelloides* from Manitoba and central Alberta that includes five from Lac la Nonne, the type locality of *umbelloides* as restricted by Snyder and Shortt (loc. cit.). Specimen collected:

Mistassini Post: 1 ad. ♂; July 11

Willow Ptarmigan. *Lagopus lagopus* subsp.

Winter visitor; apparently common and frequently noted by men of the Hudson's Bay Company Post at Lake Mistassini. Macoun (Low, 1885) says that it appears at Lake Mistassini about October 25 and departs about May 1.

William Jeffery said that it breeds in the Eastmain Hills, north of Lake Mistassini.

Semipalmated Plover. *Charadrius hiaticula semipalmatus* Bonaparte

Uncommon spring and autumn migrant. Two alighted on the sand beach near camp at Lake Albanel on August 29 and one at the same place on September 1. On September 4, one was heard calling over Lake Albanel. Macoun (Low, 1885) saw a single specimen at Lake Mistassini on May 29, 1885. Specimens collected:

Lake Albanel: 2 juv.; Aug. 29

Spotted Sandpiper. *Actitis macularia* (Linnaeus)

Fairly common summer resident along the shores of Lake Mistassini and Lake Albanel. Commonest August 16-24 when migration appeared to be at its height. Noted as follows: June 19(1), 22(1), 23(1), 25(1), 29(1); July 1(1), 2(1), 3(1), 4(1), 5(1), 6(1), 7(1), 8(1), 12(2), 15(1), 16(1), 24(1); August 3(1), 4(1), 5(3), 6(1), 8(1), 11(2), 12(2), 13(4), 14(3), 15(1), 16(12), 17(5), 18(10), 19(4), 20(8), 21(5), 22(10), 23(4), 24(4), 25(1), 27(1), 29(2); September 1(1), 2(2), 3(1), 5(2), 9(1), 10(1), 11(1), 12(2).

On August 5, Standfield observed a wounded adult spotted sandpiper to swim for a distance of 6 feet under water using wings for propulsion, feet trailing.

Although we found this species fairly common, it was not reported by Macoun (Low, 1885). Specimens collected:

Mistassini Post: 1 ad. ♀; July 16
Lake Albanel: 3 ad. ♂, 6 juv.; Aug. 5-Sept. 3

[**Solitary Sandpiper.** *Tringa solitaria* Wilson. Macoun (Low, 1885), and Macoun and Macoun (1909, p. 188), reported this species common and breeding at Lake Mistassini. Almost certainly they confused it with the spotted sandpiper. It is significant that although our party found the spotted sandpiper fairly common, it was not reported at all by Macoun. On the other hand, we found no evidence of the occurrence of the solitary sandpiper, and although the latter may occur in the region, it would seem best to place it on the hypothetical list.]

Greater Yellow-legs. *Totanus melanoleucus* (Gmelin)

Uncommon spring and autumn migrant; probably breeds. Noted only twice: August 1(2), 24(1). On August 1, Standfield observed a juvenal specimen as it stood disconsolately on the sphagnum moss that reached the water's edge of a small shallow lake 2 miles northwest of Mistassini Post. The bird was collected. About 10 minutes later an adult appeared, alighted on a dead black spruce, and began calling. An imitation of its call brought the perturbed adult to within 3 feet of Standfield.

The primaries of the juvenal are not completely developed (162·5 mm.), although it could fly, and some down still is present on head and throat. Macoun (Low, 1885) observed "a single pair" on May 7, 1885. Specimens collected:

Mistassini Post: 1 ad. ♂, 1 juv. ♂; Aug. 1

Lesser Yellow-legs. *Totanus flavipes* (Gmelin)

Although not observed by our party, Macoun (Low, 1885) reported "a single pair" on August 10, 1885.

Least Sandpiper. *Erolia minutilla* (Vieillot)

Uncommon migrant. Observed only once: a single bird in company with a semipalmated sandpiper on the beach near our Lake Albanel camp on August 16. Not noted by Macoun (Low, 1885). Specimen collected:

Lake Albanel: 1 juv. ♂; Aug. 16

Semipalmated Sandpiper. *Ereunetes pusillus* (Linnaeus)

Uncommon migrant. Observed usually on sand beach, but once on rocky lake shores. Noted on August 16 (with least sandpiper mentioned above): August 20(1), 28(1), 29(1), 31(3); September 1(5). The species was not reported by Macoun. Specimens collected:

Lake Albanel: 6 juv.; Aug. 16-Sept. 1

Herring Gull. *Larus argentatus smithsonianus* Coues

Fairly common; breeds on the islands of Lake Mistassini. In the Mistassini Post region it was uncommon and was noted as follows: June 29(1), 30(2); July 4(1), 10(1), 16(1), 22(1), 23(1). At Lake Albanel:

August 6(1), 8(2, including first juvenal), 12(1), 13(1), 15(4), 18(1), 21(1), 26(1), 27(1), 31(1); September 2(1), 3(6), 4(3), 7(1), 8(1), 12(1). Specimen collected :

Lake Albanel: 1 ad. ♂; Sept. 3

[**Ring-billed Gull.** *Larus delawarensis* Ord. Although this species was recorded by Macoun (Macoun and Macoun, 1909) as "Common at Lake Mistassini, Que., where it breeds", it was not observed by us. Particular care was taken by us to identify all gulls noted. In every case where identification was possible they were *argentatus*.

Inasmuch as Macoun did not record *argentatus* at all, a fairly common species, we can conclude that he misidentified *argentatus* as *delawarensis*. *Larus delawarensis* is, therefore, relegated to the hypothetical list.]

Bonaparte Gull. *Larus philadelphia* (Ord)

Although not observed either by Macoun or by our party, a wing of this species found at the edge of the Mistassini Post Indian village was examined by the writer. There is little reason to doubt that it was taken in the region.

[**Forster Tern.** *Sterna forsteri.* Macoun's assertion (Low, 1885) that this species is common and breeds is unquestionably erroneous. His observations doubtless refer to the following species, *Sterna hirundo*. *Sterna forsteri* has no place in a list of the birds of Lake Mistassini.]

Common Tern. *Sterna hirundo hirundo* Linnaeus

Common summer resident, breeding on islands and shores of Lake Mistassini and Lake Albanel and on the islands of the larger interior lakes. Noted as follows: June 20(1), 25(2), 26(1), 28(16); July 13(1), 24(2), 30(2); August 3(4), 4(6), 5(6), 6(10), 7(6), 8(5), 9(10), 10(6), 11(6), 12(8), 13(15), 14(6), 16(12), 17(1), 18(8), 20(12), 21(4), 22(15), 23(4), 24(2), 25(1), 26(5), 27(2); September 8(4).

A colony on a rocky shore 4 miles north of our Lake Albanel camp contained about twenty nests on June 22, according to Dr. Wahl who photographed one nest of three eggs. About three breeding pairs on a small island in Lake Einar were noted by the writer on August 3. Also it is said to breed commonly on some of the middle islands of Lake Mistassini. This species was not reported by Macoun. Specimens collected:

Lake Albanel: 7 ad. ♂, 2 ad. ♀, 1 ad. unsexed; Aug. 6-22

Great Horned Owl. *Bubo virginianus* subsp.

Surprisingly rare. Macoun (Low, 1885) did not note it at all. An average of 6 hours in the field each day and many nocturnal quests for this owl produced only the following information: on July 7, an owl that appeared to be this species was seen in flight at about 200 yards by the writer as it crossed a broad bay at dusk. On the same date, a contour feather and a primary of this species were picked up in black spruce forest 2 miles northwest of Mistassini Post. On July 21, one was heard calling at about 10.30 p.m. by Standfield. On August 8, our cook described a large owl that he saw in daylight. He noted ear tufts and said that the bird appeared very black. On September 9, Standfield heard one calling near camp at Lake Albanel. The Indians readily recognized a picture of this owl.

Snowy Owl. *Nyctea scandiaca* (Linnaeus)

The Indians quickly recognized a picture of this species. Mr. Jeffery of Mistassini Post, said that it occurs in varying numbers in winter.

American Hawk Owl. *Surnia ulula caparoch* (Müller)

Macoun (Low, 1885) recorded the hawk owl under the name *Surnia funerea* Rich. and Sw. and said of it: "Rare. During winter."

Richardson Owl. *Aegolius funereus richardsoni* (Bonaparte)

The only definite information of the occurrence of this owl is a specimen in the National Museum of Canada collected at Mistassini Post on December 24, 1930, by W. Jeffery of the Hudson's Bay Company. It is quite possible that Macoun's record (Low, 1885) for the saw-whet owl actually refers to this species.

[**Saw-whet Owl.** *Aegolius acadicus acadicus* (Gmelin). Low (1896, p. 325) reported a specimen shot near Lake Mistassini. This species so closely resembles the preceding, which is known to occur at Mistassini Lake, that it seems advisable to place the saw-whet owl on the hypothetical list. The record is not used by Macoun and Macoun (1909).]

Eastern Nighthawk. *Chordeiles minor minor* (Forster)

Regularly observed in small numbers at Mistassini Post and vicinity where from one to four individuals were noted almost every evening. At Lake Albanel, however, it was noted only on August 5(1), 9(1), and 13(3).

The nasal call and booming of the nighthawk were characteristic evening sounds at Mistassini Post. In fair weather the birds hawked noisily high above the wooded ridges. Almost invariably, however, at the approach of darkness they descended to the bays where they coursed low over the water, apparently feeding, in absolute silence. Macoun (Low, 1885) reported the status of this species as "Not rare. Breeds."

Specimens collected:

Mistassini Post: 2 ad. ♂, 3 ad. ♀; July 1-26
Lake Albanel: 1 ad. ♂; Aug. 13

Eastern Belted Kingfisher. *Megaceryle alcyon alcyon* (Linnaeus)

Macoun in 1885 found this species common and breeding at Lake Mistassini. We found it not common in the Mistassini Post region although the clay banks provided it ample nesting sites. Here single specimens were recorded on June 19, 20, 23, 24, 26; July 4, 12, 16, 23, 27. The rocky east shores of Lake Albanel are unsuitable for the nesting of this species and it was here observed on only two dates: single specimens on September 6 and 8 respectively. Specimen collected:

Lake Albanel: 1 juv.; Sept. 6

Boreal Flicker. *Colaptes auratus borealis* Ridgway

Macoun found this species breeding but not common in 1885. It is a conspicuous and noisy bird and our observations listed below support Macoun in this. Noted by us as follows: June 18(1), 20(1), 21(1), 22(2), 23(1), 24(3), 25(1), 26(2), 27(2), 28(1), 29(1); July 3(1), 7(1), 8(1), 10(2), 12(2), 14(1), 15(2), 18(1), 21(1), 24(1), 25(2), 27(2), 28(2), 29(3), 30(1). At Lake Albanel, as was true of all woodpeckers, it was noted much less frequently: August 5(1), 17(1), 19(1), 27(1).

A nest located on June 23, was 10 feet up in a dead balsam poplar. On July 14, young were audible in this nest. Specimens collected:

Mistassini Post: 1 ad. ♂, 2 ad. ♀; July 12-15
Lake Albanel: 1 juv. ♂; Aug. 17

These adults, rather worn, measure (in mm.): 1 ad. ♂, wing 158·5; tail 108·7; culmen damaged; 2 ad. ♀, wing 161·5, other damaged; tail 107·2, 97·2; culmen 32·4, 27.

Obviously they are intermediate between *luteus* and *borealis,* but are perhaps nearer the latter, considering their worn condition.

Yellow-bellied Sapsucker. *Sphyrapicus varius varius* (Linnaeus)

Although this species was not recorded by Macoun (Low, 1885) it was observed by us in the Mistassini Post region in areas where birch or poplar were mixed with conifers, as follows: June 19(1), 20(1), 21(1), 22(3); July 1(1), 4(3), 5(1), 11(1), 15(2), 16(1), 25(1), 27(2), 29(1). This species was not observed farther north at Lake Albanel.

The writer discovered a nest of this species on a birch-poplar ridge 1½ miles west of Mistassini Post on July 4. This was 20 feet up in a large dead birch. The actions of another pair on this date in the same locality suggested an additional nest. A second nest was observed by Standfield and the writer in a birch on July 11 on the west shore of Cabistachuan Bay, in which young were audible. A third nest was located by the writer, on July 15, in a fine stand of birch 3 miles south of the Post. The nest hole was only 42 inches above ground in a large dead birch. Young were almost ready to leave the nest. These seem to be the northernmost records of nesting of this species east of James Bay. Inasmuch as we did not find the species at Lake Albanel, it seems probable that it will not be found nesting much farther north in the Quebec interior than the south end of Lake Mistassini. Specimens collected:

Mistassini Post: 6 ad. ♂, 5 ad. ♀, 1 juv.; June 28-July 28

Oberholser (1938, pp. 373-374) considers birds of this species from northern United States and Canada to be deserving of subspecific recognition because of their larger size. He applies the name *Sphyrapicus varius atrothorax* (Lesson) to them.

Six breeding males from Mistassini Post measure (in mm.): wing 120·5-124 (av. 121·8); exposed culmen 22·5-24·8 (23·58). Five breeding females: wing 118·5-120 (119·3); exposed culmen 22·8-24·5 (23·4).

The main postulated difference between the northern and southern races is in the length of wing, which averages (Oberholser, loc. cit.) 124·5 mm. in adult males of *atrothorax* and 120·8 mm. in the nominate race, an average difference of less than 4 mm. The difficulties involved in recognizing this race are indicated in the measurements of Lake Mistassini birds, given above. As the Lake Mistassini birds are somewhat worn, measurements were made also of April, May, and June males, which are not unduly worn, from other Canadian localities:

Ontario (3): Ottawa, wing (in mm.) 122·8, 121·2, 121·5.

Alberta (5): Wood Buffalo Park, Lac la Nonne, Medicine Hat, wing (in mm.) 125, 120, 124·6, 123·8, 121.

On the basis of the material examined, it does not appear to be expedient to recognize *atrothorax*. Lake Mistassini birds are, therefore, referred to the nominate race.

Northern Downy Woodpecker. *Dendrocopos pubescens medianus* (Swainson)

Rare; apparently permanent resident. Macoun (Low, 1885) reported seeing this woodpecker "during winter" of 1885. By us it was observed only once: on the east shore of Abatagouche Bay in young birch-aspen-alder on a burned-over area where fire-killed stubs still stand, an adult female was noted on July 25. This specimen measures (in mm.): wing 96; tail 60·5; exposed culmen 16·4; tarsus 15·8. Specimen collected:

Mistassini Post; 1 ad. ♀; July 25

Arctic Three-toed Woodpecker. *Picoïdes arcticus* (Swainson)

Uncommon. Although Macoun (Low, 1885) did not record this species, we observed it occasionally, usually in coniferous forest where there was an admixture of birch and aspen. Observed as follows: June 20(1), 26(1), 27(1); July 1(1), 3(1), 8(2), 18(1), 23(1), 27(1), 30(1). It was not seen at Lake Albanel. Specimens collected:

Mistassini Post: 1 ad. ♂, 2 ad. ♀; July 3-8

American Three-toed Woodpecker. *Picoïdes tridactylus bacatus* Bangs

Uncommon. Not recorded by Macoun (Low, 1885). Observed by our party in much the same type of habitat favoured by the preceding species, but once noted in pure spruce forest away from deciduous trees. This species was noted on: July 12(2), 19(1), 22(1), 25(1), 29(1). Not observed at Lake Albanel.

This and the preceding species were attracted by a variety of noises such as an imitation of its tapping by using a stick on a dead tree trunk or even on the side of a canoe; by 'squeaking'; or even by squawks and odd noises made by the Canada jay. Specimens collected:

Mistassini Post: 3 ad. ♂, 1 ad. ♀; July 12-25

Wings of the males measure (in mm.): 110·5-113 (av. 111·5)

Yellow-bellied Flycatcher. *Empidonax flaviventris* (Baird and Baird)

Macoun (Low, 1885) recorded this flycatcher as a common breeder, first noted on June 2. We also found it fairly common and rather generally distributed in both the Mistassini Post region and at Lake Albanel. Although most often found near the alder runs of lower ground, it also occurred in black spruce forest and in the higher and drier birch-aspen second growth of burned-over ridges. At Mistassini Post it was noted on the following dates: June 19(1), 20(2), 21(3), 23(2), 24(2); July 2(1), 3(2), 4(2), 5(1), 6(4), 7(1), 10(1), 13(1), 15(1), 16(2), 17(1), 18(1), 21(2), 22(3), 25(2), 27(2). At Lake Albanel: August 5(1), 6(1), 8(2), 9(2), 12(1), 13(4), 14(1), 15(1), 16(2), 17(1), 20(1).

Writers on the habits of this species are almost unanimous in emphasizing its preference for dense shaded thickets, where it remains close to the ground avoiding the tops of the bushes. Previously this also was almost always true in the writer's experience. At Mistassini Lake, however, it frequently delighted to sit 20 to 30 feet above ground in the upper branches of isolated birches or aspens above the conifers, almost in the manner of the olive-sided flycatcher. At such times its less familiar disyllabic call was given in rapid succession. This particular call is probably frequently mistaken by observers for that of the least flycatcher, but it is more liquid and sounds like "cheléc" rather than "chebéc". On July 27, a specimen was collected from the top of a 35-foot jack pine. Specimens collected:

Mistassini Post: 3 ad. ♂, 1 ad. ♀; July 6-27
Lake Albanel: 2 juv. ♂; Aug. 13-20

Alder Flycatcher. *Empidonax traillii traillii* (Audubon)

It is remarkable that this common species was not recorded by Macoun (Low, 1885). We found it a common summer resident both at Mistassini Post and Lake Albanel in the alder-willow margins of the lakes, in alder bogs and alder openings in the forest, and occasionally noted it in alder-birch-aspen second growth on higher ground. Noted as follows: June 21 (1), 22(1), 23(3), 24(3), 25(2), 26(1), 27(6), 28(1), 29(3), 30(3); July 3(1), 4(2), 5(1), 7(3), 12(2), 13(1), 14(2), 16(1), 19(3), 24(3), 25(2), 27(1), 28(2); August 9(2), 11(6), 15(2), 16(2), 20(1), 22(2); September 1(1). Specimens collected:

Mistassini Post: 4 ad. ♂; June 30-July 27
Lake Albanel: 1 ad. ♂, 2 ad. ♀, 5 juv.; Aug. 8-Sept. 1

Least Flycatcher. *Empidonax minimus* (Baird and Baird)

Rare breeder in Mistassini Post region where it occurred locally in alder-poplar-birch second growth of burned-over land. Although vast areas of apparently suitable habitat were investigated, this flycatcher was found at only two points: on July 12, six "singing" males were counted on about 20 acres of alder-poplar on the south shores of a small protected bay, almost a lake, 6 miles north of the Post in a burned area. On July 15, two were observed in alders on a burned area 2½ miles north of the Post. On the latter area on July 24 three adults and two juvenals were noted. The latter obviously were just out of the nest. Here again on July 28, five birds of this species were noted. Other northern occurrences in the east of this species have been recorded by Taverner (1929, p. 78) from the Moisie Bay region, Quebec, and by Turner (1885, p. 242) from Moose Factory, southern James Bay. Specimens collected.

Mistassini Post: 3 ad. ♂; July 12-25

Olive-sided Flycatcher. *Nuttallornis borealis* (Swainson)

Fairly common summer resident of the more open coniferous forests and muskeg edges about Mistassini Post; but it was not observed at Lake Albanel. In the Mistassini Post region it was noted daily, although not more than four were recorded on any one date. The behaviour of a pair near camp made nesting obvious, although the nest was not located. Specimens collected:

Mistassini Post: 1 ad. ♂, 2 ad. ♀; July 4-7
Wing measurements of these birds are ((in mm.): 1 ♂, 105·5; 2 ♀, 99·0, 103·5

Tree Swallow. *Iridoprocne bicolor* (Vieillot)

Macoun (Low, 1885) found this species a common breeder and recorded the earliest migrant on May 10, 1885. We also found it common, nesting on such shores and islands as provide suitable nesting sites. It occurs on both the large lakes and about the smaller lakes and more extensive muskegs of the interior. It was noted as follows: June 19(13), 22(7), 23(6), 24(6), 25(5), 26(5), 27(5), 28(4), 29(7), 30(6); July 1(15), 4(6), 5(1), 7(3), 8(2), 9(4), 10(1), 11(11), 12(2), 13(3), 14(3), 16(10), 17(1), 18(3), 19(2), 21(3), 22(1), 23(1), 24(1), 25(3), 27(3), 28(2); August 3(3), 4(1), 18(4), 25(2).

This swallow was observed entering or leaving nesting cavities, usually old woodpecker holes, several times. Young were still in the nest on July 16. Specimens collected:

Mistassini Post: 8 ad. ♂, 2 ad. ♀; June 25-July 25

Bank Swallow. *Riparia riparia riparia* (Linnaeus)

Apparently rare. Morris and Standfield both observed a single bird at the Hudson's Bay Company Post on July 13 and again on the following day. This species was not recorded by Macoun (Low, 1885).

Canada Jay. *Perisoreus canadensis canadensis* (Linnaeus)

Common permanent resident. In the Mistassini Post region it was observed as follows: June 21(3), 22(4), 23(5), 24(3), 26(1), 29(2), 30(2); July 3(1), 5(1), 6(1), 8(2), 12(1), 13(1), 16(3), 17(3), 18(4), 22(8), 23(2), 25(1), 27(4), 30(4); August 1(1). At Lake Albanel it was seen much less frequently and on the following dates only: August 20(2); September 1(2), 3(2).

The presence of this species was frequently detected by the scolding of small birds such as the ruby-crowned kinglet or Tennessee warbler. It seems to be disliked generally. The dark juvenals had evidently been some time out of the nest when first observed on June 22. The Canada jay was attracted by almost any unusual noise or even by the flashing in the sunlight of a bright object. Specimens collected:

Mistassini Post: 5 ad. ♂, 5 ad. ♀, 2 ad. unsexed, 10 juv.; June 22-Aug. 1
Lake Albanel: 1 ad. ♂, 1 ad. ♀; Aug. 20

Those of the above-listed specimens that are in fresh plumage compare well with specimens in fresh plumage (September-October) from northern Manitoba (Bird, 2); Ontario (Ottawa, 5; Lac Seul, 1; Cyrville, 1; Gilmour, 2; southwest coast Hudson Bay, 6; Charlton Island, James Bay, 1); Quebec (Messines, 1). Although the Lake Mistassini birds tend a little toward *nigricapillus*, they appear to be nearer *canadensis* and I follow Austin (1932, p. 159) in referring them to *canadensis*. I am, however, unable to follow him in so referring Nova Scotia and northeastern New Brunswick material.

Four October-taken birds from Frizzleton and two collected in February at Halifax, as well as six August and September birds from Bathurst, northeastern New Brunswick, differ markedly and consistently in their paler coloration both above and below. A further study of the latter is deferred pending the opportunity of examining additional material.

Northern Raven. *Corvus corax principalis* Ridgway

Surprisingly uncommon: observed on three dates only. A solitary individual on July 22 in flight along the west side of Baie du Poste. On July 25, three were observed 4 miles south of Mistassini Post. At Lake Albanel two were noted north of Temiscamie River mouth on September 4. Macoun (Low, 1885) observed a specimen on May 20, 1885.

Eastern Crow. *Corvus brachyrhynchos brachyrhynchos* Brehm

It was a surprise to find the crow so far north in the interior. It was observed only within a radius of ½ mile of the Post and usually on or near the largest of the wooded islands ½ mile west of Mistassini Post, where it was both seen and heard on June 25(2), June 27(1); July 7(3). On July 13, the unmistakable voice of the crow, very different from that of the raven, was heard ½ mile north of the Post. This species was observed by us only in the vicinity of Mistassini Post and was not found at Lake Albanel. It was not recorded by Macoun (Low, 1885).

[**Canadian Black-capped Chickadee.** *Parus atricapillus anamesus* (Todd). Duvall (1945, p. 56) postulates Lake Mistassini as the eastern boundary of the range of this race of the black-capped chickadee. In this he followed Macoun (Low. 1885), who states that he saw the black-capped chickadee at Lake Mistassini in winter. Macoun and Macoun (1909, p. 717) state that the species is "quite common at Lake Mistassini". An energetic search for this species by our expedition failed to produce any evidence of its occurrence at Lake Mistassini, although *Parus hudsonicus* was found to be quite common. Significantly, the latter species was not recorded by Macoun. There is little doubt that his observations apply to the following species.]

Hudsonian Chickadee. *Parus hudsonicus hudsonicus* Forster

This fairly common breeder was observed mainly in coniferous forest, as follows: June 21(1), 22(1), 25(2); July 3(4), 11(1), 14(1), 15(3), 16(1), 22(5); August 5(2), 7(2), 9(3), 11(1), 13(1), 14(1), 17(1), 20(4), 21(4), 23(1), 25(3), 31(1); September 5(1). On July 22, three juvenals not long out of the nest were being fed by an adult. Specimens collected:

Mistassini Post; 3 ad. ♂, 5 ad. ♀, 2 ad. unsexed, 1 juv. ♂; June 22-July 31
Lake Albanel: 1 ad., 4 juv.; Aug. 5-25

Through the courtesy of Mr. L. L. Snyder and the Royal Ontario Museum of Zoology, the writer was able to examine a series of nine topotypes of *P. h. hudsonicus* from Fort Severn, Ontario, of which seven are June-July adults. The measurements of the June-July adults are (in mm.):

Ad. ♂ (4), wing 64·9-68·0 (av. 65·7); tail 62·0-66·5 (63·7); tarsus 16·9-17·9 (17·3); exposed culmen 8·9-9·6 (9·3).

Ad. ♀ (3), wing 62·2-63·9 (av. 63·0); tail 61·7-63·5 (62·3); tarsus 16·7-17·0 (16·8); exposed culmen 9·0-9·5 (9·2).

Wing and tail measurements of June-July adults from Lake Mistassini are (in mm.):

Males (4), wing 65·0-66·4 (av. 65·8); tail 63·0-64·0 (63·5).

Females (5), wing 60·0-64·0 (62·2); tail 55·5-62·5 (59·2).

In colour, too, specimens from Lakes Mistassini and Albanel agree fairly well with topotypes of *hudsonicus,* although the plumage of the upper parts in both series is considerably abraded.

Red-breasted Nuthatch. *Sitta canadensis* Linnaeus

Rare. Noted only twice; a single bird on June 28 and another on July 16.

Brown Creeper. *Certhia familiaris americana* Bonaparte

Fairly common summer resident in black spruce forest at both Mistassini Post and Lake Albanel; breeds. Observed on the following dates: June 27(2), 28(1), 30(1); July 2(1), 3(2), 4(1), 7(1), 8(1), 17(1), 19(3), 21(3), 30(4); August 8(1), 9(3), 11(1), 12(1), 14(1), 18(2), 19(1), 24(1), 25(1), 27(1), 29(1); September 1(3).

The attractive song of this species was heard as late as July 17. On July 19, a juvenal not long out of the nest was collected near Mistassini Post. It obviously had been raised in the vicinity. This seems to be the northernmost recorded instance of the breeding of this species east of the Great Lakes, although Lewis (1927, p. 66; 1928a, pp. 229; and 1930, p. 111) has recorded its presence at Clarke City, Seven Islands village, Havre St. Pierre, and Natashquan, Quebec. The species was seen by Taverner (1929, p. 79) almost daily at Lac Marchand in June 1928. One was collected by him near Moisie Bay on June 29 of that year. Specimens collected:

Mistassini Post: 2 ad. ♂, 1 ad. ♀, 1 ad. unsexed, 3 juv. ♂; July 3-30
Lake Albanel: 2 juv.; Aug. 14-Sept. 1

Specimens from Mistassini Lake closely resemble the type and a single topotype of *C. f. anticostiensis* Braund and McCullagh. Almost no other material in strictly comparable plumage is at present available for comparison, however, and it, therefore, seems best to defer expressing an opinion on either the validity of *anticostiensis* or the significance of the grey coloration of the Lake Mistassini specimens until adequate material for comparison is available. Birds from Lake Mistassini are, therefore, tentatively referred to *americana.*

Eastern Winter Wren. *Troglodytes troglodytes hiemalis* Vieillot

Common summer resident in more open areas and wood edges along the shores of both Lake Mistassini and Lake Albanel where it favoured brushy windfall tangles or old burns. Noted as follows: June 20(2), 21(2), 22(1), 23(1), 24(2), 25(1), 26(2), 27(2), 28(1), 29(1), 30(1); July 1(1), 2(1), 3(1), 4(2), 5(2), 7(2), 8(2), 10(2), 11(2), 12(8), 13(3), 14(1), 15(4), 16(5), 17(4), 18(1), 19(1), 21(4), 22(2), 23(2), 24(1), 25(2), 27(4), 28(2), 29(2), 30(2); August 3(1), 7(1), 10(1), 13(2), 17(1); September 3(4).

Although usually remaining close to the ground, occasionally this bird flew to the top of a 30- to 35-foot black spruce and there repeated its amazing song for considerable periods. Song was last heard on August 13. A very young juvenal was collected on September 3 at Lake Albanel 6 miles north of the Temiscamie River mouth, indicating that even in this northern locality two broods are raised a year.

Macoun and Macoun (1909, p. 701) state that this species is "not rare at Lake Mistassini." Macoun's assertion (Low, 1885) that it occurs "during winter", however, is of course, most improbable. Specimens collected:

Mistassini Post: 2 ad. ♂, 1 ad. ♀; June 28-July 26
Lake Albanel: 1 ad. ♀, 1 juv. ♂; Sept. 3

Black-backed Robin. *Turdus migratorius nigrideus* Aldrich and Nutt

Fairly common breeder in more open forest areas and in the second growth of burnt lands. Two pairs nested at the edge of the cleared land of the Hudson's Bay Company Post. It is interesting that these individuals were rather tame in contrast to the wariness of robins observed away from the Post, where in all localities the robin was wild and difficult to approach. It was observed in the Mistassini Post region as follows: June 19(3), 20(2), 21(2), 22(2), 23(1), 24(3), 25(1), 26(6), 27(3), 28(2), 29(3), 30(2); July 1(1), 2(2), 3(1), 4(1), 7(2), 8(2), 10(1), 11(1), 12(2), 13(2), 14(3), 15(4), 16(1), 17(3), 18(3), 19(4), 21(2), 22(2), 23(1), 24(4), 25(2), 27(2), 29(1), 30(1). At Lake Albanel: August 13(1), 16(2), 22(1); September 1(1), 5(2), 9(1). Macoun first recorded it on May 8, 1885 (Low, 1885). Specimens collected:

Mistassini Post: 1 ad. ♂, 1 ad. ♀, 2 juv.; July 3-Aug. 1

The adult male is, in its black dorsal coloration, apparently inseparable from *nigrideus*. The two juvenals average slightly darker and greyer dorsally than twelve from Ottawa, Ontario, although they are less heavily spotted below than are specimens of similar age from Newfoundland, but not less so than a single juvenal examined from Fort Chimo. Breeding specimens of *T. m. nigrideus* have been recorded from Chateau Bay, coastal Labrador, by Peters and Burleigh (1944, p. 472); Chimo, northern Quebec, by Aldrich (1945, p. 310); and from Lake Minto and Bush Lake, northwestern Quebec, by Manning (1947, pp. 472-473). Two males in the National Museum of Canada taken at La Tabatière, Saguenay county, Quebec, by O. H. Hewitt on June 21, 1946, are nearer to *nigrideus* than to *migratorius*. The Lake Mistassini male is decidedly darker dorsally than either of the La Tabatière specimens and if it fairly represents the breeding population of the region there seems no alternative but to refer it to *nigrideus*. Birds from Lake St. John, however, are *migratorius* (Godfrey and Wilk, 1948, p. 17).

Eastern Hermit Thrush. *Hylocichla guttata faxoni* Bangs and Penard

Fairly common summer resident, occurring in the second growth of old burns, in mixed coniferous-deciduous woods, or in stands of pure coniferous forest. Observed as follows: June 20(1), 21(3), 22(1), 23(2), 24(3), 25(2), 26(3), 27(2), 28(2), 29(1); July 1(2), 2(1), 3(3), 4(4), 5(4), 7(2), 8(1), 11(3), 12(2), 14(2), 15(1), 16(2), 17(2), 18(4), 21(1), 22(3), 23(3), 24(2), 25(3), 27(3), 28(1), 29(3); August 13(1), 29(1); Sept. 5(3), 12(1). Specimens collected:

Mistassini Post: 1 ad. ♀; July 27
Lake Albanel: 1 ad. ♀, 1 juv.; Aug. 13-Sept. 5

Olive-backed Thrush. *Hylocichla ustulata swainsoni* (Tschudi)

Common summer resident generally, particularly favouring second growth of burnt land. Commoner than the preceding species. Noted as follows: June 19(1), 20(1), 23(3), 24(3), 25(1), 26(2), 27(1), 28(3), 29(1), 30(1); July 1(1), 2(1), 3(2), 5(3), 7(4), 8(4), 10(5), 11(3), 12(6), 13(5), 14(6), 15(7), 16(5), 17(6), 18(9), 19(10), 21(7), 22(6), 23(8), 24(8), 25(12), 27(6) 28(6), 29(3), 30(3); August 5(2), 8(1), 11(2), 20(1); September 6(4). Adults first observed carrying food on July 16. First flying juvenals noted on July 22. This species was apparently confused by Macoun (Low, 1885) with the preceding species, as he did not record the olive-backed thrush. Specimens collected:

Mistassini Post: 6 ad. ♂, 2 ad. ♀, 1 juv. ♂; June 22-July 23
Lake Albanel: 1 post-juv. ♂; Sept. 6

Eastern Golden-crowned Kinglet. *Regulus satrapa satrapa* Lichtenstein

This species, although not recorded by Macoun (Low, 1885) is not uncommon on the south end of Lake Mistassini, where it breeds in coniferous forest. It was not observed farther north at Lake Albanel, however. First flying juvenals noted on July 21. Observed as follows: June 21(3), 22(2), 23(4), 24(3), 26(4); July 2(1), 3(9), 4(2), 5(1), 7(2), 8(1), 13(1), 15(1), 17(1), 19(6), 21(2), 22(2), 25(1), 27(1). Specimens collected:

Mistassini Post: 4 ad. ♂, 4 ad. ♀; June 21-July 22

Eastern Ruby-crowned Kinglet. *Regulus calendula calendula* (Linnaeus)

Very common summer resident of coniferous forests. Its song and scolding notes were characteristic sounds almost everywhere in the region. Last song heard on August 14. Noted on following dates: June 19(3), 20(5), 22(8), 23(6), 24(5), 25(4), 26(4), 27(7), 28(4), 29(4), 30(4); July 1(5), 2(3), 3(9), 4(11), 5(8), 7(4), 8(9), 10(3), 11(1), 12(6), 13(5), 14(8), 15(4), 16(6), 17(4), 18(4), 19(9), 21(6), 22(8), 23(5), 24(3), 25(6), 27(3), 28(4), 29(3), 30(7); August 3(6), 7(4), 8(4), 9(5), 10(1), 11(5), 12(8), 13(3), 14(3), 15(8), 16(25), 17(15), 18(20), 19(15), 20(17), 21(25), 22(20), 23(2), 24(20), 25(5), 26(8), 27(6), 28(2), 29(2); September 1(14), 2(10), 3(14), 4(7), 5(10), 6(13). Numbers in second half of August were swelled apparently by migrants.

A female on June 21 had an egg in the oviduct. Adults observed carrying food on July 17 and 22. First young out of nest noted on July 29. Macoun's (Low, 1885) earliest spring record for this species was May 11, 1885. Specimens collected:

Mistassini Post: 11 ad. ♂, 3 ad. ♀, 1 juv. ♂; June 21-July 29
Lake Albanel: 1 ad. ♂, 19 juv.; Aug. 7-Sept. 1

American Pipit. *Anthus spinoletta rubescens* (Tunstall)

Migrant. On September 12, Standfield observed a single specimen north of the Temiscamie River mouth on the east shore of Lake Albanel. Again on September 13, the same observer saw approximately fifty migrating and feeding along the east shore of Lake Albanel.

Cedar Waxwing. *Bombycilla cedrorum* Vieillot

Uncommon summer resident. Observed only near the Hudson's Bay Company Post. It was noted on the following dates: June 21(1), 25(1); July 4(1), 10(1), 14(1), 18(7), 19(3), 21(1). Macoun (Low, 1885) also observed it and recorded it as, "Rare. Breeds."

[**Blue-headed Vireo.** *Vireo solitarius* (Wilson). The writer twice heard two singing birds, almost certainly of this species, in birch-poplar woods on the crest of a ridge 1 mile northwest of the Post on June 24 and on July 4. Although the song is sufficiently different from that of *olivaceus* to make identification reasonably sure, it proved impossible to see the singers. The species is, therefore, placed in the Lake Mistassini hypothetical list. Wilk found it fairly common on the south side of Lake St. John, Quebec (Godfrey and Wilk, 1948), and Lewis (1937, p. 122) certainly identified a specimen at Pointe aux Basques, near Seven Islands, Quebec, on May 30, 1935.]

Red-eyed Vireo. *Vireo olivaceus* (Linnaeus)

Uncommon summer resident in poplar-birch subclimax on burnt areas at both Mistassini Post and Lake Albanel. Observed as follows: June 26 (2), 28(1), 29(2), 30(1); July 1(1), 2(1), 3(2), 5(2), 8(1), 10(1), 12(1), 15(1), 16(1), 17(1), 18(1), 19(1), 21(2), 27(2). At Lake Albanel: August 11(2); September 6(1).

In Ontario this species has been recorded north to Moose Factory (Macoun and Macoun, 1909). Taverner (MS.) noted one under good visual conditions at Lac Marchand, Quebec, in June 1928, and heard about six near there on June 21 of the same year. Specimens collected:

Mistassini Post: 1 ad. ♂, 1 ad. ♀; July 5-25

Philadelphia Vireo. *Vireo philadelphicus* (Cassin)

Rare summer resident. Our only record was a single specimen collected in the poplar-birch-alder of a small burned-over area 4 miles north of Mistassini Post on July 25. Other northern localities in the East where this bird has been collected are Moose Factory, Ontario (Preble, 1902, p. 125), and Matamek, Quebec (Taverner, 1929, p. 79). Specimen collected:

Mistassini Post: 1 ad. ♀; July 25

Tennessee Warbler. *Vermivora peregrina* (Wilson)

Very common breeder in Mistassini Post region. Generally distributed and second in numbers only to the white-throated sparrow. Noted as follows: June 19(1), 20(2), 21(3), 22(1), 23(2), 24(2), 25(5), 26(7), 27(6), 28(10), 29(5), 30(4); July 1(6), 2(4), 3(15), 4(13), 5(10), 7(8), 8(5), 10(8), 11(4), 12(5), 13(9), 14(8), 15(6), 16(9), 17(8), 18(6), 19(11), 21(8), 22(8), 23(4), 24(4), 25(4), 27(2), 28(1), 29(2), 30(2). At Lake Albanel it was observed on only three dates: August 3(3), 7(4), 16(1). Singing decreased noticeably after July 21, and probably the fewer numbers recorded at Lake Albanel are, in part at least, attributable to this. Last heard in song on August 3.

During the noon lull in the songs of the white-throated sparrow and the ruby-crowned kinglet, the song of the Tennessee warbler was often the only sound above the drone of insects in the black spruce forest. From the top of a spruce or aspen this bird persisted throughout the daylight hours. On June 27, at about 5.45 p.m., one was observed to sing in flight. It ascended a few feet above the tree tops, almost hovered while it delivered a song that was longer and more liquid than the usual one and ended with the third part of the more usual song as the bird dropped back into the tree tops. This performance was observed again on June 28 at about 8.30 a.m.

On July 4, the writer discovered a nest that contained six half-incubated eggs. This was on a low ridge 2 miles northwest of the Post at the edge of an alder bog surrounded by black spruce. The nest was under a dead spruce branch on the ground in sphagnum moss and was partly domed by the moss. It was surrounded by dense tangles of Labrador tea and several small spruces. Incubation by the female. This species was first observed carrying food on July 16. Specimens collected:

Mistassini Post: 20 ad. ♂, 5 ad. ♀; June 21-July 31
Lake Albanel: 2 juv. ♂; Aug. 7-16

Northern Yellow Warbler. *Dendroica petechia amnicola* Batchelder

Fairly common breeder, favouring the willow-alder margins of Lakes Mistassini and Albanel. Most of the low islands also had at least one breeding pair. One 10-acre island, 5 miles north of the Post, forested with 40-foot birch (*B. papyrifera*), had four singing males on July 12, but not more than two pairs were noted on any one of the many other small islands visited.

A nest located on a tiny islet, 100 feet square, on June 29 contained five fresh eggs. The islet was wooded mainly with stunted black spruce and a few mountain ash (*Sorbus*) with alder borders and a heavy growth of blueberry and Labrador tea. The nest, in stunted black spruce overhanging the water and 2½ feet above its surface, was made up of twigs, some shreds of cotton cloth (probably from nearby Indian village), catkins of willow, and a few gull contour feathers.

The species was observed as follows: June 19(1), 20(1), 21(1), 22(1), 25(1), 27(1), 28(1), 29(2), 30(2); July 1(1), 3(1), 4(1), 5(1), 8(1), 10(1), 11(1), 12(6), 13(1), 14(4), 16(11), 17(1), 18(2), 19(2), 21(1), 23(1), 24(1), 25(1); August 9(4), 16(2), 17(2), 22(1). Specimens collected:

Mistassini Post: 5 ad. ♂, 2 ad. ♀; June 27-July 25
Lake Albanel: 1 ad. ♂, 4 juv.; Aug. 9-27

They are definitely referable to *amnicola*.

Magnolia Warbler. *Dendroica magnolia* (Wilson)

Common breeder in coniferous or coniferous-deciduous woods. Observed as follows: June 19(1), 20(1), 21(3), 22(3), 23(2), 24(2), 25(2), 26(2), 27(2), 28(6), 29(3), 30(1); July 2(4), 3(8), 4(4), 5(4), 8(2), 10(3), 12(2), 13(3), 14(5), 15(2), 16(7), 17(5), 18(2), 19(3), 21(5), 22(3), 23(3), 24(1), 25(1), 28(1), 29(1), 30(1); August 6(3), 7(1); September 3(1).

A nest on June 28 was located in a small black spruce near the base of a steep hillside bordering a narrow willow-alder bog. Nest of grasses lined with blackish rootlets and situated on a branch 1½ feet from the ground; eggs four, fresh. Female, incubating, was flushed from the nest and remained absolutely silent. Another nest on July 17, of similar construction to the first, was in a balsam fir sapling and was 15 inches above the ground. It contained four small young. Specimens collected:

Mistassini Post: 12 ad. ♂, 5 ad. ♀; June 21-July 31
Lake Albanel: 1 ad. ♂; Sept. 3

Eastern Myrtle Warbler. *Dendroica coronata coronata* (Linnaeus)

Common and generally distributed summer resident. Noted as follows: June 19(1), 20(2), 21(3), 22(4), 23(7), 24(7), 25(8), 26(6), 27(5), 28(3), 29(2), 30(3); July 3(2), 4(2), 5(2), 7(1), 8(2), 10(2), 12(3), 13(2), 14(3), 15(3), 16(5), 17(2), 18(1), 19(4), 21(2), 22(4), 23(1), 24(2), 25(2), 27(9), 28(1), 29(1), 30(1); August 8(1), 9(2), 10(1), 11(1), 14(3), 15(4), 16(60), 17(12), 18(10), 19(7), 20(30), 21(18), 22(12), 23(4), 24(15), 25(2), 26(1); September 1(15), 2(7), 3(5), 4(3), 5(15), 6(40), 8(2), 9(3), 10(2), 11(1), 12(2). Apparently considerable migratory movement after mid-August. Specimens collected:

Mistassini Post: 8 ad. ♂, 3 ad. ♀; June 21-July 22
Lake Albanel: 1 ad. ♂, 2 ad. ♀, 9 juv. ♂, 4 juv. ♀, 17 juv. unsexed; Aug. 14-Sept. 5

Oberholser (1938) has pointed out that myrtle warblers breeding in Alaska are recognizable as a western race of this species. The range of this is not yet fully determined. The western birds are larger, as measurements given below indicate. In colour, the western form averages less solidly black below.

Wing measurements (in mm.) of eight breeding males from Alaska and southern Yukon: 74·6-77·2 (av. 75·2).

Wing measurements of eight breeding males from Lake Mistassini: 71·0-74·0 (av. 72·7).

Mistassini specimens are in size and colour referable to the nominate race.

Black-throated Green Warbler. *Dendroica virens virens* (Gmelin)

Uncommon summer resident in Mistassini Post region; not seen at Lake Albanel. This species displayed a decided preference for coniferous forest in which an admixture of birch occurred. Noted as follows: June 20(1), 21(3), 22(2), 25(1), 26(4), 28(5), 30(1); July 1(2), 2(2), 3(5), 4(2), 5(1), 7(1), 11(1), 12(3), 13(2), 14(2), 15(2), 17(1), 19(5), 21(4), 22(2), 24(1), 25(1), 27(2), 28(1), 29(2), 30(1). Specimens collected:

Mistassini Post: 3 ad. ♂, 3 ad. ♀; June 22-July 19

Blackburnian Warbler. *Dendroica fusca* (Müller)

Apparently very rare. Standfield certainly identified an adult male on August 13 in the second growth birch-poplar of a ridge in a burned area 1½ miles east of our Lake Albanel camp. This species must be very rare, however, as no others were seen and the distinctive song was not heard anywhere. Other northern records of this species in eastern Canada are Couper's record of both sexes observed at Natashquan, north shore of the Gulf of St. Lawrence, on June 20, 1867 (Lewis, 1935, p. 115), and Audubon's statement that "In Labrador we saw several individuals of both sexes." Farther south, near Pointe des Monts, Quebec, a specimen was shot by N. A. Comeau on June 9, 1882 (Merriam, 1882, p. 234), and at Lake St. John, Wilk collected four, August 2-20, 1946 (Godfrey and Wilk, 1948).

Bay-breasted Warbler. *Dendroica castanea* (Wilson)

Rare summer resident. On June 28, the writer heard a singing male in open spruce-balsam fir forest on a ridge ½ mile north of Mistassini Post. A male was collected by Standfield on July 1 in similar habitat and one taken by Morris on July 16 was in the same type of habitat. No other observations. Specimens collected:

Mistassini Post: 2 ad. ♂; July 1-16

Black-poll Warbler. *Dendroica striata* (Forster)

Apparently a rare summer resident in the Mistassini Post region. While paddling past a black spruce shore west of the Post on July 3, the writer heard the song of this species. Investigation revealed a male and female in courtship. The female was lost in the dense underbrush, but the male, in breeding condition, was secured. All other observations were at Lake Albanel: August 18(1), 21(1); September 1(1), 5(25), 6(8). A decided migration wave was apparent on September 5 when an estimated twenty-five were noted in threes and fours, often in company with myrtle warblers, along the alder margins of Lake Albanel. Specimens collected:

Mistassini Post: 1 ad. ♂; July 3
Lake Albanel: 10 juv.; Aug. 18-Sept. 6

All Lake Albanel birds except one are in complete post-juvenal plumage. The exception, taken on August 21, is still mainly in juvenal plumage.

Yellow Palm Warbler. *Dendroica palmarum hypochrysea* Ridgway

Observed only in a black spruce-alder bog 2 miles north of Mistassini Post, where on July 23 the writer collected an adult male and heard the song of an additional specimen. Specimen collected:

Mistassini Post: 1 ad. ♂; July 23

This specimen, badly worn, measures (in mm.): wing 64·5; tail 48·4; exposed culmen 10·0; tarsus 21·1. In colour it is unquestionably referable to *hypochrysea*.

Oven-bird. *Seiurus aurocapillus aurocapillus* (Linnaeus)

Rare summer resident. On June 22 Standfield and the writer heard the unmistakable song several times on a south-facing slope of birch-poplar. On July 3, another bird was heard by the writer on another south-facing slope wooded with spruce-fir-birch and undercover of blueberry, laurel, and Labrador tea. Neither bird was seen, but there can be no doubt about the identification in either case.

Grinnell Water-thrush. *Seiurus noveboracensis notabilis* Ridgway

Common breeder, favouring the willow-alder margins of the shores and islands of both lakes. Observed as follows: June 19(1), 20(1), 21(1), 23(2), 24(1), 25(2), 26(2), 27(1), 29(1), 30(2); July 1(2), 2(1), 3(1), 4(1), 5(3), 7(1), 8(3), 10(2), 11(1), 12(3), 13(1), 14(2), 15(1), 16(7), 22(1), 25(1), 26(1); August 3(1), 4(1), 7(4), 8(2), 9(8), 10(1), 11(3), 12(2), 13(1), 16(1), 17(1), 20(6), 22(2), 29(1); September 1(2), 5(3), 6(2), 7(1), 9(1), 10(1). Specimens collected:

Mistassini Post: 4 ad. ♂, 2 ad. ♀; June 23-July 16
Lake Albanel: 11 juv.; Aug. 7-Sept. 5

A study of the material in the National Museum of Canada as well as that in the Royal Ontario Museum of Zoology and the Cleveland Museum of Natural History has convinced the writer that the respective ranges of *S. n. noveboracensis* and *S. n. notabilis* are in need of considerable revision. The A.O.U. Check-list, fourth edition, gives Manitoba and northwestern Michigan as the eastern limit of the breeding range of *notabilis*. Examination of a large series of this species from well-distributed localities in Ontario and Quebec indicates that it is impractical to separate these, either on the basis of colour or size, from birds breeding in the Prairie Provinces, and that *notabilis* is another example of a subspecies heretofore thought to be "western" in distribution that actually extends east across the northern part of the species' range perhaps to the Atlantic coast. The only breeding specimens of *S. n. noveboracensis* that the writer has examined are from Nova Scotia, but no material is at present available from extreme southern Quebec, the northeastern United States, or New Brunswick, some or all of which may prove to be referable to *noveboracensis*.

Mourning Warbler. *Oporornis philadelphia* (Wilson)

Uncommon summer resident; probably breeds. Its presence was generally detected by the far-carrying, distinctive song. Noted as follows: June 22(1), 25(1), 26(1), 27(1), 30(3); July 4(1), 7(1), 14(3), 27(1). Last heard in song on July 27. In every case but one this species was located in low, sparse, black spruce-tamarack-alder bogs where openings were interspersed with tangles of Labrador tea and blueberry, and which were flooded by hip-deep water. It was a frequent associate of the Lincoln sparrow. The exception was a bird in drier sparse black spruce with under cover of laurel, Labrador tea, and blueberry, and with occasional glades of reindeer moss. Specimen collected:

Mistassini Post: 1 ad. ♂; June 22

Records of this species so far north in Quebec are few, the only other of which the writer is aware being an observation by Lewis (1928b, p. 193) of an adult male at The Bluff Harbour, outer north shore of the Gulf of St. Lawrence, Quebec, on June 21, 1928.

Northern Yellow-throat. *Geothlypis trichas brachidactyla* (Swainson)

Fairly common summer resident and breeder in the Mistassini Post region; commoner at Lake Albanel. Found usually in willow-alder margins of open water, but occasionally met with in drier, bushy, burnt areas.

Observed as follows: June 25(2), 26(2), 27(3), 29(1), 30(1); July 1(1), 3(1), 4(1), 8(1), 10(1), 12(2), 13(1), 16(1), 23(3), 28(2), 30(1); August 4(1), 6(1), 7(1), 8(4), 9(3), 11(3), 12(5), 13(2), 15(3), 16(1), 17(1), 19(8), 20(6), 21(2), 27(3), 29(5); September 1(6), 2(3), 3(6), 4(1), 5(2), 6(2), 10(1), 12(2). Last heard in song August 7. A female, on June 25, had an egg in the oviduct.

A peculiarity in song was first noted by us at Dolbeau, Lake St. John, Quebec, on June 13 and 14, 1947. Here the usual song was shortened to *witchit—witchit—witchit* in almost every case. It was true also of the songs heard later at Lake Mistassini. This shortening of the song is occasionally heard in more southern localities, but is the exception in the writer's experience. In these northern localities it was the rule. Specimens collected:

Mistassini Post: 3 ad. ♂, 1 ad. ♀, 1 juv.; June 20-July 28
Lake Albanel: 2 ad. ♀, 5 juv. ♂, 2 juv. ♀, 6 juv., unsexed; Aug. 9-Sept. 6

Wilson Warbler. *Wilsonia pusilla pusilla* (Wilson)

Surprisingly rare in the vicinity of Mistassini Post. In a burnt area 4 miles north of the Post the writer heard a singing male in an alder tangle on July 10. The bird was collected, our only record. At Lake Albanel, however, it was not uncommon, particularly after mid-August. All observations in second growth on burnt land or in willow-alder of lake shore. Noted at Lake Albanel as follows: August 13(1), 15(4), 16(1), 19(1), 20(5), 21(5), 24(1), 27(3), 28(2), 29(2), 30(1); September 1(2), 3(1), 5(2), 6(8), 8(1). Specimens collected:

Mistassini Post: 1 ad. ♂; July 10
Lake Albanel: 2 ad. ♂, 1 ad. ♀, 8 juv. ♂, 5 juv. ♀; Aug. 15-Sept. 6

Canada Warbler. *Wilsonia canadensis* (Linnaeus)

Rare summer resident. Noted only once; an adult male taken by Standfield on July 28 in a wet alder strip in second growth (aspen) of a burnt area on the west shore of Abatagouche Bay 3 miles north of the Post. Taverner (1929, p. 79) recorded a specimen from Matamek, north shore of the Gulf of St. Lawrence, Quebec, taken on June 13, 1928. Specimen collected:

Mistassini Post: 1 ad. ♂; July 28

American Redstart. *Setophaga ruticilla* (Linnaeus)

Rare summer resident. On June 26, one was heard by the writer in mixed woods ¾ mile north of the Post. On July 5, two were heard in second growth poplar-alder on a burned area 4 miles north of the Post. One of these was collected. On July 20, another was collected at the latter place. Not observed elsewhere. Specimens collected:

Mistassini Post: 2 ad. ♂; July 5-10

Rusty Blackbird. *Euphagus carolinus* (Müller)

Uncommon summer resident; breeds. Frequents wet willow-alder edges of Lake Mistassini and similar habitat along rivers and streams and smaller lakes in the interior. Not observed at Lake Albanel. Observed as follows: June 19(1), 23(2), 26(2), 27(1), 29(1); July 4(1), 5(1), 7(2), 11(1), 12(2), 13(1), 23(3), 25(1), 27(6), 29(4), 30(2). Flying juvenals first noted on July 27, July 31(2); August 3(1). Macoun's (Low, 1885) earliest date of the occurrence of this species was May 14. Specimens collected:

Mistassini Post: 2 ad. ♂, 1 ad. ♀, 4 juv.; July 4-31

[**Eastern Cowbird.** *Molothrus ater ater.* Macoun's (Low, 1885) statement that this species is common and breeds at Lake Mistassini is obviously erroneous.]

Eastern Purple Finch. *Carpodacus purpureus purpureus* (Gmelin)

This species was noted regularly in small numbers about the clearing at the Hudson's Bay Company Post, where it breeds. Much rarer elsewhere. Observed as follows: June 19(2), 20(2), 21(2), 22(1), 25(2), 26(2), 27(2), 28(1), 29(1); July 2(1), 3(3), 4(4), 5(3), 7(3), 9(4), 10(2), 11(8), 13(6), 14(5), 15(4), 16(4), 17(4), 18(4), 19(4), 21(2), 22(4), 23(5), 24(3), 25(2), 27(1), 28(1), 29(1), 30(2). Lake Albanel: August 4(1), 9(2), 12(8), 16(2), 17(1); September 6(1). A short-tailed juvenal, obviously just out of the nest, was taken on July 30 at Mistassini Post. Specimens collected:

Mistassini Post: 4 ad. ♂, 2 1-year ♂, 1 juv.; July 7-30
Lake Albanel: 1 ad. ♂, 1 ad. ♀, 2 juv.; Aug. 9-16

Newfoundland Pine Grosbeak. *Pinicola enucleator eschatosa* Oberholser

Rather uncommon permanent resident and breeder. Observed mostly in coniferous forest, where its pleasing whistle was heard usually from the top of a tall black spruce, although on July 10 a silent adult male was seen deep in a dense 10-foot high tangle of alders on a burnt area. On July 26, a short-tailed juvenal, only a short time out of the nest, was located by its persistent calls, which resembled the alarm note of the adult. Observed in the Mistassini Post region as follows: June 22(1); July 10(2), 17(2), 18(1), 21(1), 22(2), 25(3), 26(2), 27(1), 28(1), 29(1). Although Morris and Standfield observed it only once along the shores of Lake Albanel (two on August 12), the writer noted three single individuals farther inland between Kallio Lake and Temiscamie River on August 3. Macoun (Low, 1885) observed this species during the winter at Lake Mistassini. Specimens collected:

Mistassini Post: 1 ad. ♂, 1 imm. ♂, 1 juv. ♂; July 10-26
Kallio Lake: 1 imm. ♂; Aug. 3

These specimens suggest that at least 2 years are required to attain adult plumage. A male taken August 3 has no trace of red in the plumage, but the gonads were considerably enlarged. The plumage is badly worn and the secondaries are being renewed. Rae (1912, p. 180) has shown that in the case of *P. e. californica* a male may breed in this plumage. In a male from Mistassini Post taken on July 10 the red of throat and under parts is divided by a band of olivaceous coloration across the chest. This is, however, sparsely and asymmetrically marked with red on the right side, unmarked with red on the left side. Another male taken on the same date is apparently an adult with the red coloration symmetrically distributed.

In size the material listed above is clearly referable to *eschatosa*.

Common Redpoll. *Acanthis flammea flammea* (Linnaeus)

On August 16, Standfield saw a single bird, which was injured and apparently unable to fly. Running across the bare rocks on the east shore of Lake Albanel, it would quickly have been lost in the dense tangle a few feet distant, had he not collected it at close range. Only the head, part of the culmen, could be saved. It is, however, identifiable as a male, apparently adult, of this species. We obtained no other evidence of the summer occurrence of this species. Macoun (Low, 1885) speaks of its occurrence in winter.

Eastern Pine Siskin. *Spinus pinus pinus* (Wilson)

Fairly common in coniferous forest. Observed in small groups or singles as follows: June 19(1), 21(1), 22(5), 24(2), 25(1), 26(17, one flock), 28(2), 29(1); July 1(1), 3(2), 10(1), 11(1), 13(1), 14(1), 17(2), 18(1), 19(1), 21(2), 22(1), 23(4), 24(1), 25(3), 27(2), 28(3), 29(5), 30(4); August 3(4), 7(2), 13(1). Although we obtained no direct evidence of breeding, testes of males taken on July 19 and 23 were in breeding condition. Specimens collected:

Mistassini Post: 3 ad. ♂, 1 ad. unsexed; July 19-23

The adults are similar to breeding birds from Gaspe Peninsula, Quebec. They are darker than any specimens examined from the West, which Aldrich has separated as *S. p. vagans* (1946, pp. 133-135), although most of the western birds in the National Museum of Canada are not in strictly comparable plumage.

White-winged Crossbill. *Loxia leucoptera leucoptera* Gmelin

Fairly common but no direct evidence of breeding, although testes of males were considerably enlarged. Birds usually noted in flight or in the tops of larger conifers. Observed as follows: June 22 (feathers of an adult male were found, which apparently had been killed by a predator), 23(6), 25(4), 26(6), 27(7), 28(2), 29(2), 30(4); July 2(9), 3(4), 4(4), 5(10), 7(10), 10(2), 11(2), 12(25), 14(17), 15(4), 16(5), 17(4), 18(5), 19(1), 21(4), 22(2), 23(6), 24(1), 25(5), 27(2), 28(1), 29(1), 30(7); August 9(2). Although it is possible that some of the above observations might include *Loxia curvirostra*, all specimens near enough to be identifiable were *leucoptera*. Macoun (Low, 1885) observed this species in winter. Specimens collected:

Mistassini Post: 3 ad. ♂; July 4-22

Churchill Savannah Sparrow. *Passerculus sandwichensis oblitus* Peters and Griscom

Due to a paucity of clearings, little suitable habitat was available for this species, which is an uncommon and local summer resident in the Mistassini Post region. A single specimen was heard on June 20 in the clearing at the Hudson's Bay Company Post. The species was noted also in a muskeg where small patches of stunted black spruce and tamarack were numerous, on June 23(2); July 4(2), 7(2). On July 4, 14, and 18 two also were noted on a large, partly submerged peninsula where black spruce and tamarack patches were interspersed with tangles of blueberry and Labrador tea. A single bird was flushed from the *Scirpus* edge of a shallow inland lake on July 7.

No Savannah sparrows were observed at Lake Albanel until September 5, when five appeared in the *Ledum-Kalmia* margins of the east shore of the lake. In this habitat the species was observed on mainland and small islands also on September 6(10), 7(1), 12(1). They probably were migrants. Specimens collected:

Mistassini Post: 2 ad. ♂, 1 ad. ♀; June 23-July 18
Lake Albanel: 2 juv. ♂; Sept. 6

The three breeding adults differ little from Lake St. John, Quebec, breeding birds and are referred to *oblitus*.

Labrador Savannah Sparrow. *Passerculus sandwichensis labradorius* Howe

Migrant. An adult male and a juvenile taken at Lake Albanel on September 5 belong to this race. This may seem surprising in view of current opinion that *labradorius* is confined to the coast of Labrador. However, through the generosity of Mr. Henry Hildebrand, the National Museum recently received a small but adequate series of *labradorius* from several localities on the coast of Ungava Bay, and the writer has examined also a splendid series of 19 (Royal Ontario Museum of Zoology) in fresh autumn plumage taken at Sugluk on western Hudson Strait by Mr. T. H. Manning. The southern limits of the breeding range of *labradorius* are still unknown however. Specimens collected:

Lake Albanel: 1 ad. ♂, 1 juv. unsexed; Sept. 6

Slate-coloured Junco. *Junco hyemalis hyemalis* (Linnaeus)

Common; breeds. This species was generally distributed in the Mistassini Post region, but was apparently less common at Lake Albanel. Although frequently noted in dense black spruce forest, where it mounted to the tree tops to sing, it was more numerous on spruce-tamarack bog edges or along narrow alder-bordered streams in the spruce forest. Observed as follows: June 19(1), 20(2), 21(4), 22(3), 23(5), 24(10), 25(5), 26(6), 27(6), 28(3), 29(8), 30(4); July 1(4), 2(4), 3(14), 4(12), 5(5), 7(6), 8(6), 10(5), 12(3), 13(2), 14(8), 15(4), 16(6), 17(7), 18(5), 19(11), 21(6), 22(4), 23(4), 24(2), 25(4), 27(9), 28(3), 29(6), 30(5); August 3(8), 5(2), 6(1), 7(1), 11(2), 15(1), 16(1), 24(1), 25(1), 26(1); September 1(1), 5(1), 6(4), 7(2), 8(6), 12(1).

Nests containing four eggs each were located on June 21, 23, and July 3, respectively. A fourth nest, found on July 5, contained three 1 day old birds and one egg. Young first seen in flight on July 14.

Macoun's observation (Low, 1885) that this species is present all year is questionable. It is difficult to believe that it winters. Specimens collected:

Mistassini Post: 14 ad. ♂, 5 ad. ♀, 1 juv. ♂; June 23-July 23
Lake Albanel: 2 juv. ♂, 1 juv. unsexed; Aug. 11-Sept. 8

Eastern Tree Sparrow. *Spizella arborea arborea* (Wilson)

Migrant. Not observed by us. Macoun (Low, 1885) says that it is common and breeds. He gives May 15 as the date of his earliest observation. In view of Macoun's statement that it breeds, this species was especially looked for by our party. We found no trace of the species and doubt very much that it does so.

Eastern Chipping Sparrow. *Spizella passerina passerina* (Bechstein)

This species was observed only at the edge of the Hudson's Bay Company Post clearing, where it was noted as follows: June 22(1), 25(1), 30(1); July 3(1), 16(1), 17(2), 18(1), 19(2), 21(1), 30(1). Large numbers of Indians were camped here and the chipping sparrows remained so close to their abodes that no opportunity to collect them was had, although they were observed under ideal conditions. The chipping sparrow is here probably near the northern limit of its range in the East. It has been recorded from the north shore of the Gulf of St. Lawrence by Lewis (1923, p. 137; 1925, pp. 84-85; 1927, p. 65), from Mingan, Natashquan, and Seven Islands. Macoun and Macoun (1909, p. 523) recorded it from Moose Factory, Ontario.

White-throated Sparrow. *Zonotrichia albicollis* (Gmelin)

The commonest and most generally distributed bird both at Lake Mistassini and Lake Albanel; breeds. Noted as follows: June 19(6), 20(12), 21(5), 22(11), 23(5), 24(13), 25(7), 26(7), 27(5), 28(15), 29(2), 30(12); July 1(7), 2(3), 3(17), 4(9), 5(8), 7(6), 8(11), 9(9), 10(8), 11(5), 12(12), 13(7), 14(12), 15(10), 16(8), 17(10), 18(6), 19(16), 20(6), 21(13), 22(10), 23(6), 24(6), 25(12), 27(7), 28(8), 29(5), 30(6), 31(9); August 3(14), 4(5), 5(4), 6(7), 7(2), 8(12), 9(10), 10(4), 11(12), 12(10), 13(15), 14(6), 15(10), 16(22), 17(10), 18(10), 19(7), 20(8), 21(12), 22(10), 23(6), 24(13), 25(7), 26(8), 27(12), 28(10), 29(20), 30(8), 31(5); September 1(20), 2(8), 3(21), 4(7), 5(16), 6(20), 7(15), 8(18), 9(4), 10(2), 11(6), 12(8).

Young first observed out of the nest on July 14, after which they were frequently noted. A nest containing three fresh eggs was located on July 25 and a female with an egg in the oviduct was taken on July 17. Small young, barely able to fly, were observed as late as August 22. Specimens collected:

Mistassini Post: 27 ad. and sub-ad. ♂, 11 ad. and sub-ad. ♀, 3 juvenals; June 22-Aug. 1

Lake Albanel: 5 ad. and sub-ad. ♂, 4 ad. and sub-ad. ♀, 17 juv.; Aug. 6-Sept. 3

Lincoln Sparrow. *Melospiza lincolnii lincolnii* (Audubon)

Uncommon breeder in Mistassini Post region; more common at Lake Albanel. Wet sphagnum bogs with islands of stunted spruce and alder appeared to be the preferred habitat of this finch. It was very unevenly distributed, however. One such bog of 400 acres, censused on July 18, contained four singing males. Many other apparently similar bogs in the region had no Lincoln sparrow population, others only a single pair. A singing male was several times noted in the comparatively dry alder edge of the Hudson's Bay Company Post clearing.

At Lake Albanel this was a fairly common species in the burnt land along the east shore of the lake where *Ledum-Kalmia* tangles covered the ground. On August 11, two adults were observed feeding on maggots on a dead fish at the water's edge. The species was observed as follows: July 4(2), 6(1), 7(1), 13(1), 16(1), 18(5), 20(1), 23(1), 27(4), 30(1); August 6(1), 8(1), 9(2), 11(3), 12(4), 13(2), 16(2), 17(1), 18(1), 19(5), 20(4), 28(1), 29(5), 30(1); September 1(1), 3(2), 5(4).

Singing usually stopped when the singer was approached to 40 yards. If young were present, concern was expressed by a distinct *chip* somewhat similar to that of the Savannah sparrow. At such times the adults were no more wary than those of the Savannah or swamp sparrow. Townsend and Allen observed (1907, p. 401) that "in singing it keeps concealed so that it is very difficult to see the performer." The writer several times saw singing males in the tops of 15-foot high black spruces, and in other localities has seen this bird singing from the top of low alders, brush piles, and from an open-field fence post. Since the time of Audubon, the shyness of this bird has been unanimously stressed so much that one, in fact, gains the impression from the literature that there must be something uncanny about the ability of this bird to keep out of sight. The writer has not observed it to be much more secretive than some of the other finches, either on its breeding grounds or in migration farther south.

Townsend and Allen's statement (op. cit.) that "the bird does not seem to be found in the interior" of the Labrador peninsula is apparently based on John Macoun's erroneous statement that it is not found at Lake Mistassini. Specimens collected:

Mistassini Post: 2 ad. ♂, 3 ad. ♀; July 18-27
Lake Albanel: 2 ad ♀, 1 ad. unsexed, 11 juv.; Aug. 6-Sept. 5

Northern Swamp Sparrow. *Melospiza georgiana ericrypta* Oberholser

Common breeder in alder-willow margins of both the large and small lakes. A nest, located 12 feet from the edge of a 10-acre pond 2 miles inland from the shore of Lake Mistassini, was found on June 23. It was on a low hummock overgrown with Labrador tea and blueberry in an opening in the alder-tamarack margin of the pond. Nest of sedges or grasses. It contained five fresh eggs. On two occasions the incubating adult left the nest silently and uttered no sound in the two 10-minute periods the nest was under observation.

In approximately 280 acres of alder-willow bordering a shallow bay in the Mistassini Post region, six pairs of swamp sparrows were estimated. At Mistassini Post it was noted as follows: June 22(3), 24(1), 25(3), 26(2), 27(4), 29(1), 30(4); July 3(1), 4(4), 7(2), 8(1), 11(1), 12(7), 13(6), 14(5), 16(3), 17(1), 18(4), 19(1), 22(2), 23(9), 24(4), 25(5), 27(2), 29(2), 30(2). At Lake Albanel it appeared much less common, due probably to less favourable habitat. It was there observed on August 3(1), 9(1), 11(1), 16(3), 20(1); September 3(3).

The writer (in press) has demonstrated the range of *M. g. ericrypta* as occupying a broad northern edge of the species range in the East. Specimens from Lake Mistassini and Albanel are referred to it. Specimens collected:

Mistassini Post: 9 ad. ♂, 3 ad. ♀, 1 juv.; June 23-Aug. 1
Lake Albanel: 3 ad. ♀, 4 juv. ♂; Aug. 9-Sept. 3

[**Song Sparrow.** *Melospiza melodia.* In view of Macoun's statement that the song sparrow is a common breeder at Lake Mistassini (Low, 1885, p. 34D) a diligent search was made for it by us, but without success. As Macoun did not record the Lincoln sparrow at Lake Mistassini, one can only conclude that he confused the two species. We have no evidence that the song sparrow occurs at Lake Mistassini.]

Eastern Snow Bunting. *Plectrophenax nivalis nivalis* (Linnaeus)

Macoun (Low, 1885) observed that this species left Lake Mistassini for its breeding grounds about May 10.

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